

NEWS IN PERSPECTIVE

MANAGEMENT VIEW

"STOCK OPTION HORRORS" presented in the SEC Staff's findings in the Middle South Utilities case must be recognized by even the most vehement opponents of stock options as a "vastly overdrawn caricature," says the utility in its reply brief. "Is the SEC compelled by the Public Utility Holding Company Act to disapprove of all plans for restricted stock options? That's the primary issue," Middle South claims. (See p.41.)

NEW "COMPETITIVE" POLICY, dealing with the relationship of the electrical industry to "other fuels, particularly gas" will make two out of every five homes in the U.S. all--electric by 1970, predicts R. G. MacDonald. The EEI sales division executive committee chairman told a press conference last month that this will be achieved with "a much sharper campaign" . . . that makes a break with previous advertising and promotion. The key image--flameless--evolved from a consumer survey conducted by the agency, Compton Advertising, Inc. (Preview of the approach, as outlined for the EEI annual meeting, was reported in EL&P, June 15, p. 82.)

WASTE AND INEQUITIES of Federal government participation in the electric power business are shown "in an ideal way" by its new cartoon-type motion picture, "The Castaways," Cleveland Elect. Illuminating Co. believes. One of the first films on the subject produced within the industry to be generally applicable in any part of the U.S., it is offered to other companies by CEI.

CORPORATE OWNERSHIP LIMITATIONS should not apply to the regional power systems of interconnected plants which will be made possible by improved high voltage transmission lines now under development, Dominick & Dominick notes in a "Ten Year Investment Forecast."

The investment banking firm observed in the forecast that the electric public utilities are placing major research emphasis in this area. "The concept of the 'all electric home' is a reality," the forecast says, concluding: "No group of companies faces greater certainty of better-than-average growth in the next ten years . . . resulting in an estimated 100-percent increase for the industry."

ECONOMIC CLIMATE

SATISFACTORY BUSINESS for the rest of the year is expected by most economists and businessmen. Though no forces making for dynamic change are readily visible, it is evident that a further modest upward movement is quite likely. Construction is lending strength to the outlook as commercial, residential, and public building stay high. Some easing in the availability of money for business borrowings (but at no interest rate concessions) is noted. Though the highly optimistic forecasts made at the beginning of the year do not appear to be on their way to being fully borne out, the pessimists' dire anticipations appear to be even farther from the truth.

AMONG MAJOR INDUSTRIES only the railroads claim to be in deep trouble. Steps will doubtless be taken in the relatively near future to help them. The oil industry is showing a modest production and sales gain from last year, but prices are weak. Retail sales, long a source of strength, have slackened a trifle. They should, however, improve substantially as the year rolls along. Auto production is pointing toward more than 6.5-million units before the year ends.

PROBLEM OF IDLE CAPACITY, troubling to government economists and analysts, not to mention the manufacturers themselves, may not change much for several

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years. Capacities and buying demand may take that long to come into balance again. But, in one industry--steam turbine manufacturing--plant capacities should be filling up over the next two years. Rising orders are expected to bring increased engineering and manufacturing employment, the U. S. Commerce Dept. comments in a current release. And, long-term, says Commerce BDSA, "the steam-turbine generator industry can expect a substantial advance."

WASHINGTON INFLUENCE

ECAP PROGRAM gets implied favorable mention in the House Ways and Means Committee's favorable report on the Boggs (D., La.) bill to permit tax deductions for certain expenses with respect to legislative proposals. With Treasury approval, the lawmakers would change the Internal Revenue rules that have provoked

much business opposition. The Committee says that "it is unreasonable to force either the Internal Revenue Service or the taxpayers to bear burdens of administration and compliance such as those produced by the rule of the regulations, and also believes that administrative problems . . . could only lead to a situation in which the rule, if enforced at all, would be enforced only partially and unevenly." (See p. 45.)

INTERNATIONAL ATOMIC PROGRAM is a failure, according to a report to the JCAE made by Robert McKinney, newspaper publisher and atoms-for-peace expert. This political bombshell--not yet released officially but due for Congressional consideration in August--accuses the Administration of lack of leadership. It says that A-power R&D was too small and inadequately financed. Part of the failure can be blamed on misjudgment of supplies of conventional fuels and errors in assessing A-power costs. Estimate of fossil

Electric Utility Barometer

(Source: Edison Electric Institute)



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fuel resources in the West is suggested as the equivalent of 5-trillion tons of coal. The report also suggests that the Sino-Soviet bloc may have almost 9-trillion equivalent coal-tons. McKinney claims that domestic nuclear activities did not support international objectives. The Euratom program should stop stressing plant construction and work toward more R&D to achieve economic A-power later in this century.

PROPOSED FPC CHANGE in power system statements requires the larger ones to report the names of manufacturers of boilers, prime movers, generators, and transformers used in their stations. The Commission will not make its proposal final until after August 1 to give interested parties time to submit written views.

SEC LAWS may change later this year. The Senate has passed 5 bills giving the agency additional authority; the House may well act before it adjourns. Big changes would be possible in the over-the-counter market.

SAFETY STANDARDS for the electric utility industry should be set either by statute or by regulation, says Rep. Ashley (D., Ohio). He also favors establishing a government agency to set rules and standards to protect workers. Rep. Ashley, citing figures on fatal injury and permanent impairment to workers, was highly critical of the industry's "outmoded equipment and inadequate safety standards." Suggestions made by Ashley include, among others, limiting consecutive working hours, de-energizing equipment during maintenance work, and setting safety requirements for high voltage equipments.

40-YEAR WATER PLAN for the West made by the Reclamation Bureau calls for \$22-billion in public and private development to bring 17-million more acres under irrigation. Federal projects could be expected to handle \$12-billion and private development the rest. The California Plan would take up \$8.6-billion, alone. The projects would yield about 6-million kwh of new hydro power--about doubling pres-

ent capacity--with all except the California Plan being generated on Federal projects. Reclamation's estimates are based on 75-percent development of the total potential.

TREASURY STUDY to determine current practices and opinions on depreciation allowances for income tax purposes will question public utilities in its survey of about 6,000 businesses. The information, kept in confidence, will be used to evaluate proposed changes in the tax laws, due for Congressional overhauling next session.

DEMOCRATIC PLATFORM praises free competitive enterprise "as the most creative and productive form of economic order" ever devised. Question, though, is--to achieve the increased growth rate of the economy (to 5-percent), as pledged in the platform, --would the Democrats rely principally on the natural workings of private enterprise, or would they choose to expand government spending appreciably? A hint: Candidate Kennedy supported the reduction of TVA activity in the early '50's, while today he is known to favor more Federal spending for public works.

INDUSTRY SIFTINGS

HEATING TRAINING COURSE in the form of an all-new flip chart sales stimulator is being pushed by EEI, which calls the course "the most comprehensive of its kind yet devised." It should help considerably--by enabling utility people to stress benefits--to overcome still-substantial public resistance to electric heating.

BUT, NEW GAS HOUSEHEATING customers added in 1959 totaled 1.16-million, and 3.9-million more are predicted in next three years. U.S. total of gas-heated homes has now passed 20-million.

GE-LABOR TALKS looking to a new agreement to replace the contract which expires Oct. 1 have already been underway for a couple of weeks. First subject up for discussion: employment security, at GE's insistence. (Meanwhile, a decline in GE sales and earnings was announced for the first half of 1960.)

NATIONWIDE COST OF NEAR (National Emergency Alarm System) are estimated to

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be \$40-60-million, about the cost of one major outpost in the Early Warning System. NEAR has a capability of reaching 96-percent of the population of the U.S. To install NEAR in the state of Michigan would cost an estimated \$2.3-million, but the estimated annual income to Consumers Power alone is estimated to be about \$2-million, according to FCDA officials.

METERMAN'S METER STORY, the highlights of Sangamo's new J-3 design, is being presented to utility men through attention-getting "stere-o-card" technique. The J-3's "true magnetic flotation" was recently introduced by Sangamo's Pres. Jim Patton in the first of a series of color slides. Other features of the improved meter are being described on similar slide cards arriving at the customer's desk at ten day intervals, presenting the viewpoints of these top engineering and sales personnel of Sangamo: Messrs. Griffith, Kurz, Schwarz, Wylie and Hall.

MIDSUMMER ATOMIC MILESTONES--In July the first fuel loading for the Northeast's first nuclear power station at Rowe, Mass. was made; on July 20, ceremonies at Consumers Power Co.'s Big Rock Atomic Power Plant near Charlevoix, Mich., marked the opening of this project's major construction phase; and near Chicago, Commonwealth Edison next month expects to dedicate the Dresden Station, first privately financed full-scale atomic power project in the world.

FERMI REACTOR CASE RULING is expected to be delayed, with opponents of the Justice Dept. appeal for a re-hearing given a chance to file again before any possible review by the court, which is in summer recess.

RADIATION DETECTION TRAINING is being given to more than 50 employees of West Penn Power, as part of a state civil defense program. Civil defense officials stress the fact that "power companies, distributed as they are over the entire state, can augment state civil defense information in the event of an attack."

FAULTY EQUIPMENT PERFORMANCE by the Priest Rapids Dam project of a Washington PUD has caused the English Electric Co.

to offer an extension of guarantee periods: from one to five years on five transformers and from one to two years on four generators.



LOOKING AHEAD... FINANCIALLY

--From Irving Trust

Utility financing for the third quarter of 1960:

Scheduled

	Quarter	Million \$	Completed
<u>Electric</u>	400	37	373
Bonds	371	29	352
Preferred	23	8	15
Common	6	0	6
<u>Gas</u>	169	69	100
Bonds	111	64	47
Preferred	15	0	15
Common	43	5	38
<u>Telephone</u>	257	50	207
All Bonds			

From these figures it appears that both electric and gas utilities will have completed just under three quarters (71-percent) of their estimated total financing for the year by the end of the third quarter. It is more than likely that a few additional issues will be scheduled between now and the end of the quarter. Conflict has been barely avoided in some cases, so early scheduling of any additional third quarter issues is advised.

The next U.S. Government financing operation will be the refunding of securities due August 15.

A firm tone prevails in the Municipal bond market despite the fact dealers are counting on two factors to stimulate demand--additional credit--easing moves by the Federal Reserve and a lessening of the potential supply. The first is speculative, but the second seems assured with only about \$200-million of long-term offerings up for competitive bidding before mid-August.

Middle South Stock Option Bid to SEC: "There Is No Problem" Under PUHC Act

Is the Securities and Exchange Commission compelled by provisions of the Public Utility Holding Company Act to disapprove of all plans for restricted stock options?

"That's the primary issue" before the Commission in its consideration of the application-declaration proposing the stock option plan of Middle South Utilities, Inc., the utility group claims. On June 30, Middle South filed with the SEC a brief which accused the Commission's Staff of being "driven to make an extreme case," maintaining "there is of course no such prohibition in the Act"

Middle South charged that the SEC staff was trying this case under the wrong Act. "Most of the Staff's arguments might be relevant to a statute like the Investment Company Act of 1940, which has a prohibition against options. But the Public Utility Holding Company Act contains no such 'thou shalt not'"

After charging that "even the most vehement opponents of stock options must recognize as a vastly overdrawn caricature the chamber of stock option horrors presented in the proposed findings of the (SEC) Staff," Middle South strongly suggested to the SEC that "the question of stock options must be approached from a more reasonable and unbiased viewpoint."

Middle South charged that the SEC Staff "seldom comes to grips with substance" in its consideration of the issue. The Commission should approach the question of stock options, advises Middle South, "by applying the Act on the basis of the ends which it seeks to achieve . . . as the Commission has throughout the history of the Act."

In the brief, Middle South maintains "there is no problem" under

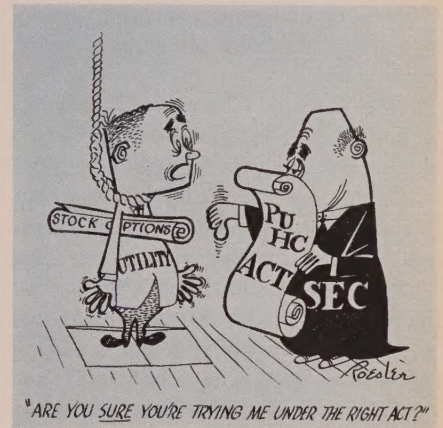
any of the various pertinent sections of the Act, including 7 (c) (1); 7 (d) (3); and 7 (d) (6). And, if the restricted stock options were considered to be securities, says Middle South, they would meet the standards of Sections 7 (c) (2) (D) and (d) (1).

In the brief, Middle South concludes that, in view of the record submitted, the Commission should issue an order which will (1) permit the solicitation of proxies for a stockholders vote to consider and act upon (a) a restricted stock option plan and (b) an amendment to Middle South's Certificate of Incorporation eliminating preemptive rights with respect to the issuance of shares pursuant to such a plan; and (2) authorize the issuance and sale of up to 120,000 shares of Middle South's authorized but unissued common stock (\$10 par value).

The Middle South brief argued further that "the important consideration is that stock options do cause executives to work in a more inspired way—to put their hearts and souls into their jobs because they benefit from the fruits of their labor . . . Courts and regulatory commissions have repeatedly made findings as to the importance of stock options as a means of attracting, retaining and motivating executives and as to the value received under a stock option plan. . . ."

Middle South asked in its brief: "Is this Commission compelled by the provisions of the Act, which do not deal with stock options as such, to single out companies which are subject to that Act and deny them the right to get and hold key personnel through the device of stock options, a right which Congress has accorded to corporations generally?"

"In shutting its eyes to the fact that at least 28 decisions in 16 States



have approved restricted stock option plans for utilities, the Staff are ignoring not only the facts that the standards of the Act are in harmony with the statutes and regulations underlying these State decisions and that the Act was designed to complement and aid State regulation . . . but are also ignoring the effect of these State decisions."

The utility said: "The Middle South System and other holding company systems must compete with these utilities, as well as with other companies, for executive talent. If the Staff's arguments were adopted, the further effect of these decisions would be to weaken the management of companies subject to the Act by allowing their best talent to be syphoned off to companies not under the impairment which the Staff advocate. . . ."

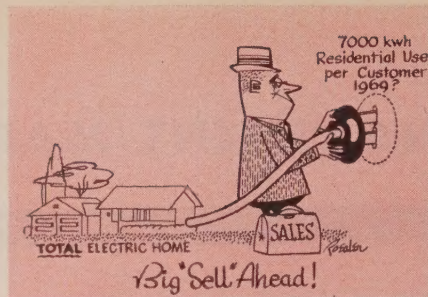
And, Middle South argued further: "If stock options do help to attract and retain better management in companies, then it must follow that as between two companies, other things being equal, the company which has the stock option plan will ultimately have the better management and will ultimately be the better company. Its stock prices will reflect that fact."

Middle South commented in its brief that the proceedings in its application-declaration furnished the Commission with its first factual record on restricted stock options.

New Offers to Encourage Residential Electric Heat

Utility companies are coming up with more and more effective devices to corral more of the house-heating load that looks increasingly attractive across the nation. With "high cost" the No. 1 customer objection, new plans and provisions aim at overcoming this cost-economy hurdle.

Philadelphia Electric Company, as part of its Electric Service Tariff, has a new provision which makes available the total electric heating of homes by a modification of existing residential electric rates. The electric house heating rider incorporates certain qualifications "which will assure high quality, well-controlled home heating" according to the utility. It is available only to residential customers who use electricity for the main source



of heat supply and whose homes meet the construction qualifications incorporated in the rider.

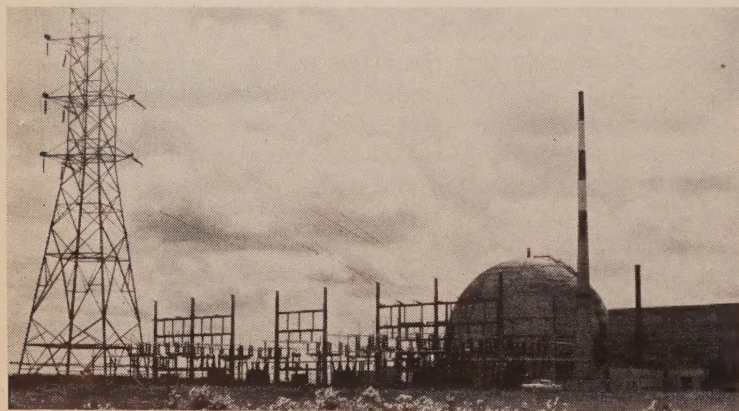
The first of these qualifications covers home construction and specifies maximum allowable heat loss limits. The second covers acceptable electric heating systems which must be of a permanently installed type with capacities engineered to meet the heating needs of the home.

Another approach—by the Duke Power Co.—also appears promising.

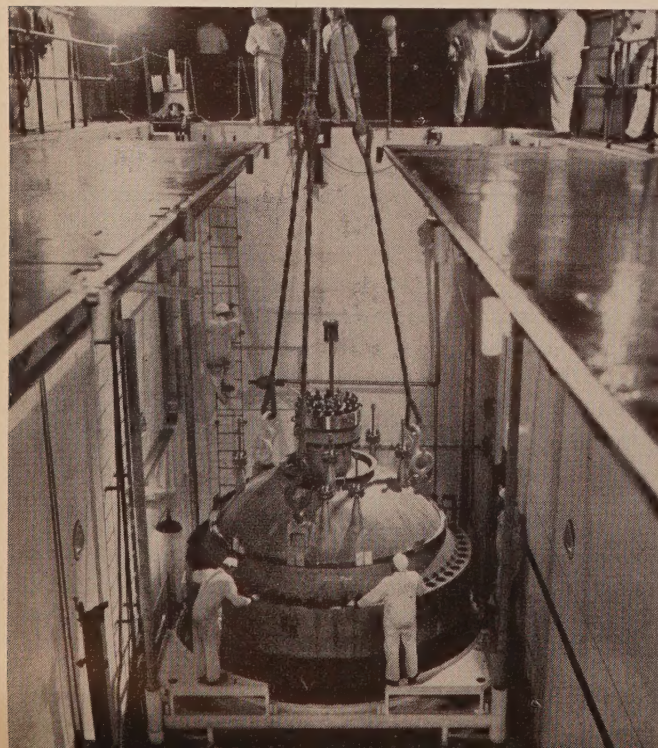
Owners of new and existing homes requiring up to a 200-amp service are qualifying for a recently announced "Housepower Panel" Plan by meeting the requirements of Duke Power's lower all-electric rate. This economy rate is based on use of electricity for all space heating, water heating and other usual household purposes "in homes that are properly insulated to assure maximum comfort at economical operating costs," according to the utility.

To help its residential customers who build or modernize for total-electric living, home owners are receiving complete housepower entrance equipment, consisting of specified wiring and a housepower panel with circuit breakers, a value of up to \$200. In addition, Duke Power will maintain this part of the electrical wiring and equipment at no charge.

DRESDEN STATION GETS "PLANT PERFORMANCE CHECK"—



Up to full power by July 1, Commonwealth Edison's Dresden Station was shut down then to prepare for plant performance checking over a several week period. Meanwhile, latest turbine and plant test data was evaluated to chart the course of following operations. A report to the AEC this month will solicit an ok to operate the first full-scale privately financed nuclear power project as a regular part of the Commonwealth Edison system. A dedication ceremony is tentatively scheduled for early next month. At left below: Prior to startup at Dresden earlier this year, a last step was placement of the 50-ton head on the reactor vessel, fastened by 56 five-inch diameter bolts. Below: Storage facility for fuel elements waiting loading in the Dresden reactor core. Fully loaded core will hold 488 elements.





Mr. Jose A. Sosa, vice-president and divisional manager of Compania Panamena de Fuerza y Luz (extreme right), presents Contractor-Architect Urano Gonzalez with a certificate identifying him as one of the prominent members of the community responsible for the promotion of the first Medallion Home in Latin America. Observing this ceremony is the Medallion Home's electrician, Mr. Jorge M. Herrera.



Outstanding members of the community take part in awarding the "Live Better Electrically" Medallion the first time in Latin America by Compania Panamena de Fuerza y Luz. In the photograph (left to right) are: Mrs. Mercedes G. de la Guardia, First Lady of the Republic, Mr. J. A. Sosa, of Compania Panamena de Fuerza y Luz and Dr. Eduardo Morgan, president of the PTA of the Colegio Javier.

Latin America Is All Excited About First "Medallion Home"

Latin America's first "Medallion Home" has generated typical Latin American exuberance. In its first year of promotion in Panama, the "Medallion Home—Live Better Electrically" idea is expected to result in the construction of six new all-electric homes—a record exceeded in but few locations of equal population in the United States.

The first "Medallion Home" was a \$70,000 prize, and while only one Panamanian won it, thousands more learned a lot about all-electric living from visits to this modern home built last year to "meet all the international requirements of the electrical industry." Winner of the coveted prize—holder of the lucky ticket in the national lottery which takes place every Sunday in Panama—was a fortunate young Panamanian planning to be married!

The big promotion utilizing the "Medallion Home" idea started just a year before the Dec. 6, 1959 date on which the new Home's owner was determined. Asked to participate in planning a Commercial Fair whose purpose was to raise funds for a building program of a Panama City college, the management of the Panama utility company accepted responsibility, as well, for promoting and soliciting participation in the Fair by electrical manufacturers' representatives and dealers. And, eventually the Fair became

preponderantly an Electrical Fair, with the active participation of nearly every distributor of electrical appliances and commercial and industrial equipment in Panama.

About the time the Fair had been brought to a successful conclusion, releases from Ebasco International Corporation, U. S. manufacturers and Edison Electric Institute indicating the success of the "Medallion-All Electric Home" promotion in the United States gave personnel of the utility (Cia Panamania de Fuerze y Luz) the idea of suggesting to the college officials the possibility of the promotion, sponsorship and construction of the first "Medallion Home" in Panama (and, in fact, in Latin America) to be raffled as the top award in accordance with Panama's laws pertaining to such promotions.

One of Panama's outstanding builders, architect-contractor Urano Gonzalez, was to have the honor of erecting this home. He and the electrical contractor, Jorge Mario Herrera, were quick to see the desirability of planning beyond minimum requirements of a Medallion Home for its promotional and leadership value. Guardia & Cia., General Electric's distributor in Panama, agreed to equip the home with its "all electric" kitchen and other appliances required in a Medallion Home.

The latest report from the Panama Company pertaining to the month of April stated that the Casa del Medallon (Medallion Home) "Rifa del Santuario Nacional del Corazon de Maria" is near completion and will soon be open for public inspection. The idea of the "Total Electric Home" has become such a matter of interest to building contractors that they are beginning to include 220-volt facilities in new apartment houses to facilitate electric cooking and water heating.

Unusual interest in the project was demonstrated and literally thousands of Panamanians visited the site, watched construction as it proceeded and sales of "Rafta Bolletos" (raffle tickets) were active throughout the construction period. Some 5,000 Panamanians visited the home on opening and dedication day and an average of over 200 per day visited it in the nearly two months it was open to the public.

The Architect and builder of the home was requested to prepare plans for construction of Medallion Homes by two clients, including Sra. Mercedes Galindo de la Guardia Geredez, wife of Panama's President. The faculty and the Parent Teachers Association of a second Colegio purchased a site for construction of three more Medallion Homes.

Panamanians proudly report they have established a new concept of better business, community and trade relations, with due credit accruing to Cia. Panamena.

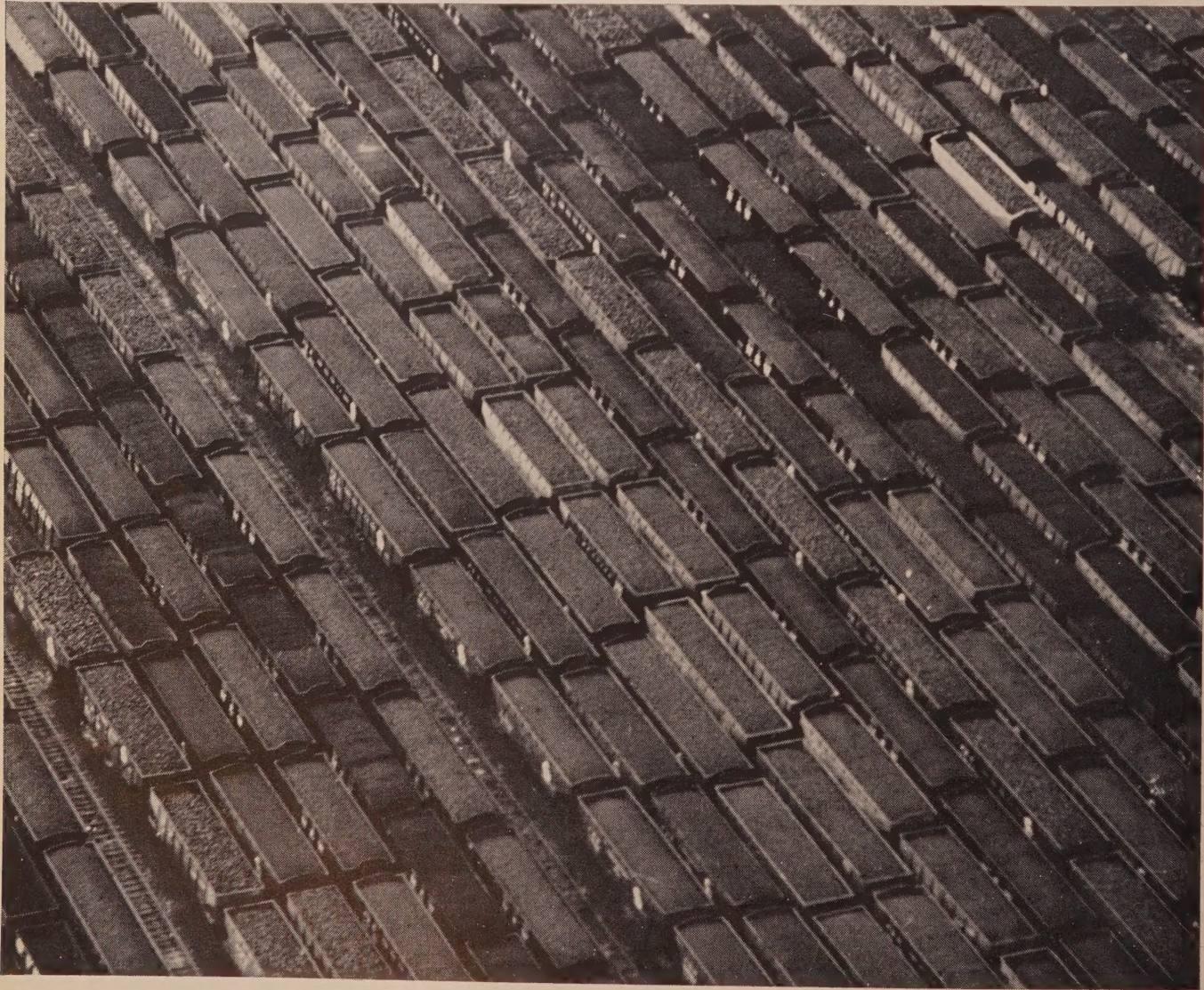
how long?...10 years?...20?...50?

(A utility needs to know!)

There has never been much room for short-term thinking in the utility business. But probably never before have utility executives and engineers been taking the *long look* in so many operating areas.

Take coal, for instance. They've been asking themselves and their coal suppliers some pointed questions: "Can we count on these suppliers to deliver the kind and quantity of coal we're going to need in the years ahead? Have they adequate reserves?

Is this coal costing us over and above its invoice price in excessive coal handling, ash handling, equipment outages, freight charges on inerts? Or is it coal that eliminates these frequently overlooked incremental costs, delivers highest operating efficiency and steam at the lowest cost?" The answers you'll get to such questions from Island Creek are the kind that let you plan ahead with confidence. We at Island Creek would welcome a chance to sit down with you for a thoroughgoing discussion. Write, wire or phone.



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by RALPH ELLIOTT

Washington Editor

BOGGS BILL STYMIED BY ELECTION YEAR POLITICS

When Congress temporarily rang down the Capitol Hill curtain last month and scooted off for the political conventions, it left a lot of pending legislation in a strangely uncertain status. For American business, large and small, the most important of these measures by far is the Boggs bill to remove the existing federal tax penalty on lobbying and on advertising related to political matters.

A realistic appraisal of just where that measure stands, and what its chances will be in the particular atmosphere that is bound to prevail when Congress reconvenes early in August, indicates about as clearly as is possible that it will get no further action until next year. The bill's proponents are not even expected to make any additional effort toward enactment this session. And for well-grounded reasons.

Congress' decision to make the session a double-header, with the conventions sandwiched in between, made it perfectly obvious that the nightcap would be a politically supercharged affair. With both parties primed for election battling, much of what is said and done up until adjournment will be motivated by partisan politics, highly seasoned with voter-appeal. This would be no time to press for legislation to give business any tax relief, regardless of the measure's merits.

As to the Boggs bill's chances next year, they depend on the proponents' ability during the adjournment months to keep up the grass roots pressure behind the measure, and possibly to neutralize some of the opposition.

At least it can be said that the present posture of the bill lends itself to the attainment of those goals. The House Ways and Means Committee last month reported the measure favorably, with strong recommendations that it be enacted. It

explained the bill's objectives in clear, non-technical language, and noted that the Treasury Department has no objection to the legislation. Thus, the report should serve as a convincing document for proponents to talk from.

Present Treasury regulations disallowing deduction for expenses incurred to influence legislation, the Committee report emphasized, have created "many administrative and enforcement problems and uncertainties which have plagued both the Government and taxpayers," and "are such as to make very difficult administration on a uniform and nondiscriminatory basis." The Boggs bill, it added, "is designed to eliminate many of these problems and uncertainties as well as to provide a more appropriate treatment for an important class of business expenses."

The report quoted extensively from Treasury Department comment on the bill which acknowledged that various provisions of the lobbying and "political" advertising regulations make it "difficult, if not impossible" for the Internal Revenue Service to administer. The quoted comment continued:

"Indeed, it has been the general position of the IRS that it is not only impracticable but undesirable to attempt to substitute the judgment

of the tax collector for that of the businessman in determining the character of the advertising appropriate for the business as long as it may reasonably be expected to increase the patronage of the business."

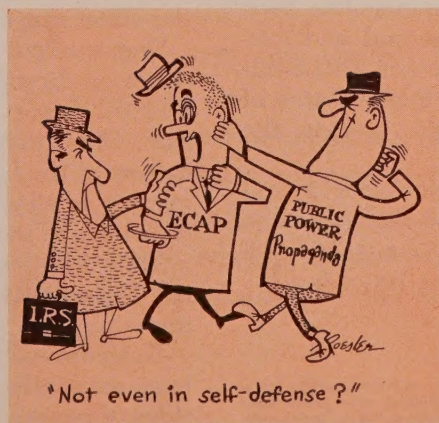
After further discussion of the many administrative problems which make uniform enforcement of the existing regulations impractical, the report concluded:

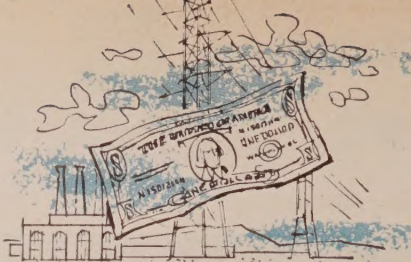
"It was these considerations which prompted your committee in ordering this bill reported. It seemed to your committee that if an expenditure is ordinary and necessary to the conduct of a taxpayer's trade or business and is lawful, it is unfair for the deduction to be disallowed just because the expense is incurred to influence legislation. Many have pointed out, for example, that expenditures to influence legislation or the outcome of a referendum may be necessary for the very survival of the taxpayer's business."

The most potent opposition to the Boggs bill is big labor, although it will be recalled that several major labor unions, including AFL-CIO, vigorously opposed the present lobbying regulations during IRS hearings on them last year. At that time they pointed out that the disallowance provisions would extend clear down to the union dues of individual workers if a "substantial part" of the union's activities are in the political field. AFL-CIO told the IRS that "political activity is as normal a part of labor activity as collective bargaining." Obviously the union was angling for an exemption for labor organizations.

But it didn't get the exemption. Now the AFL-CIO is on record as "strongly opposed" to the Boggs bill. In a letter to House Speaker Sam

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by A. C. FARMER
Economic Consultant

The Massive Tides Of Money

The ebb and flow of the massive tides of the volume of money in the American economy is the force responsible for the changes that continually are taking place in the volume of general business activity.

In the Constitution of the United States of America, the authorization of the creation of money is placed in the hands of Congress. Section 8 contains the following statement:

"The Congress shall have power
to coin money, regulate the value thereof, and of
foreign coin"

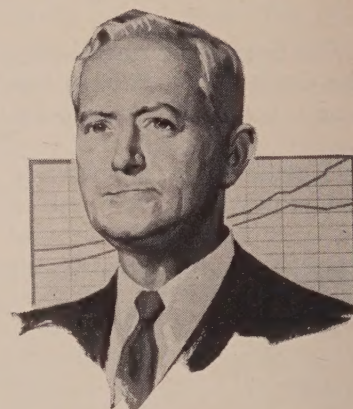
The expansion of the volume of money in the post-war period is shown in the tabulation.

Under various laws passed by Congress, three basic methods now are provided by which the volume of money in the economy can be expanded or contracted.

- A. By operations of the Federal Reserve Bank (through the purchase or sale of government securities and loans to member banks).
- B. By operations of the Treasury. (In the issuance of gold and silver certificates and coin and through deficit financing. Deficit financing involves the sale of government securities directly to the Federal Reserve Bank or to the Commercial and Savings Banks.)
- C. By operations of the Commercial and Savings Banks (through expansion or contraction of their loans and investments).*

It will be noted that the changes in the volume of money in the period under consideration have been comparatively small from direct action in the creation of money by the Federal Reserve Bank and by the Treasury, while on the other hand the largest factor in expanding the volume of money has been the expansion of loans by the commercial and savings banks. An increase in bank loans of \$101.5-billion resulted in an expansion of the total volume of money (bank deposits plus currency outside the banks) of \$83.4-billion.

Always, in peace times, the biggest factor in expanding or contracting the volume of money in the economy has been the expansion or contraction of bank loans. This can be noted from the following:



BANK LOANS AT ALL BANKS—
TYPE OF BUSINESS PERIOD

Dollars in Billions					
Bank Loans at All Banks			Change	Activity	
June '14	\$ 15.3	June '20	\$ 30.7	+\$15.4	Exp.
June '20	30.7	June '22	27.6	— 3.1	Cont.
June '22	27.6	Dec. '29	41.9	+ 14.3	Exp.
Dec. '29	41.9	June '35	20.2	— 21.7	Cont.
June '35	20.2	June '37	22.4	+ 2.2	Exp.
June '37	22.4	June '39	21.3	— 1.1	Cont.
June '39	21.3	Jan. '49	48.2	+ 26.9	Exp.
Jan. '49	48.2	July '49	47.1	— 1.1	Cont.
July '49	47.1	Dec. '56	110.1	+ 63.0	Exp.
Dec. '56	110.1	Feb. '58	113.7	+ 3.6	*Cont.
Feb. '58	113.7	Dec. '59	137.2	+ 23.5	Exp.

* The change over 14 months was so small that business contraction existed.

It can be seen, therefore, that bank loans exercise a tremendous force in the American economy. When bank loans expand, general business activity expands. When bank loans fail to expand, or expand at a reduced rate, general business adversely is affected. As stated in the previous article (EL&P June 1, 1959, p 44), "this explains why money borrowed at the banks can be so dynamic in its stimulating effects on business activity and why when the money is repaid, the effect can be so devastating."

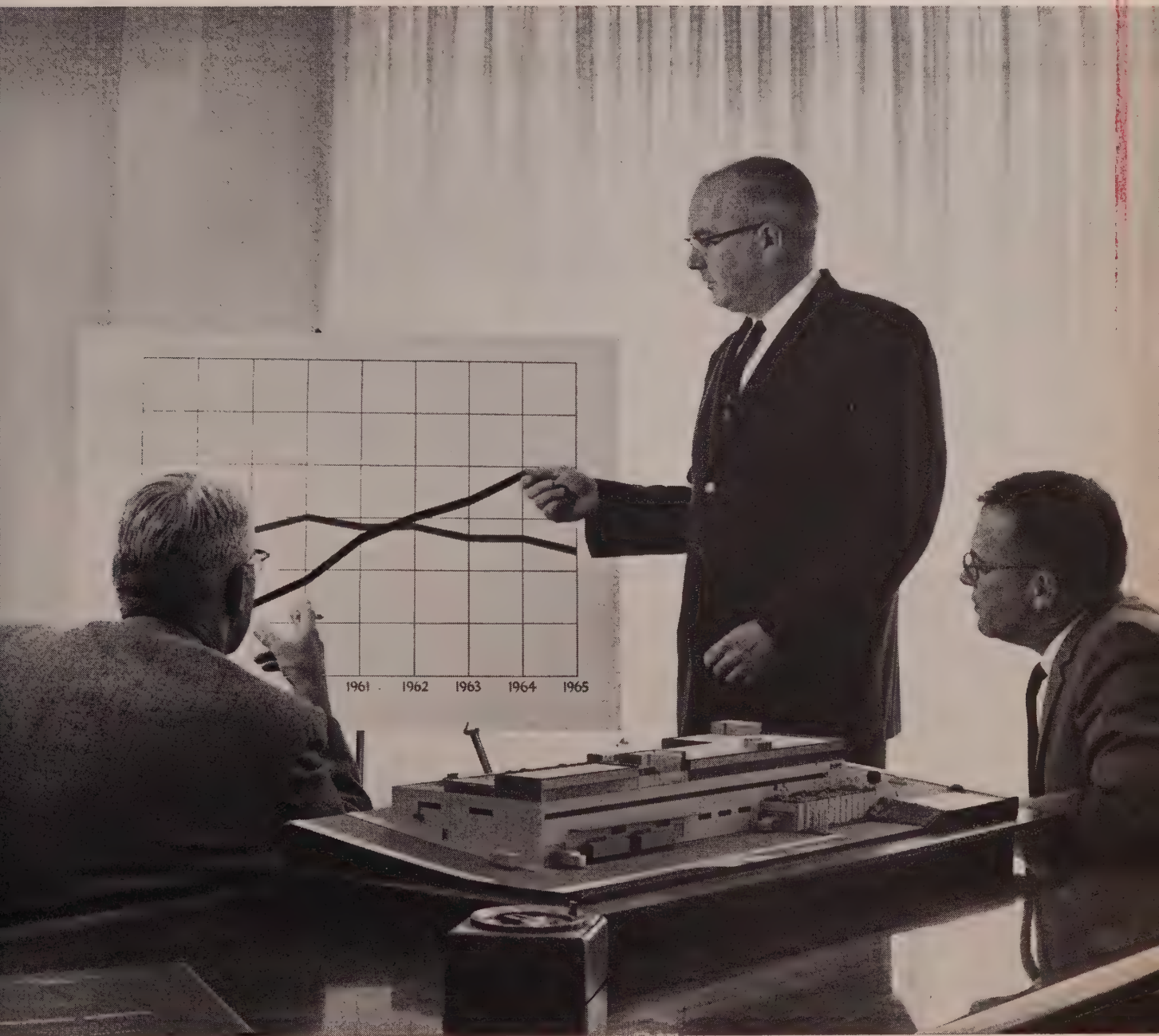
The current discouraging economic situation in America directly is the result of a program of the Federal Reserve Bank to maintain a high discount rate. This directly is slowing up the borrowing of money at the banks, and in turn business activity adversely is affected by the reduction in the spending of borrowed money.

This situation will change for the better as soon as the Federal Reserve Bank substantially reduces the discount rate.

Business executives need to understand how their business is affected by the ebb and flow of the massive tides of money.

*Note—Government agencies, authorized by Congress, are responsible for a substantial expansion of the volume of bank loans. Examples are: guaranteed mortgages—FHA and VA—the Commodity Credit Corporation—R.E.A. loans—etc.

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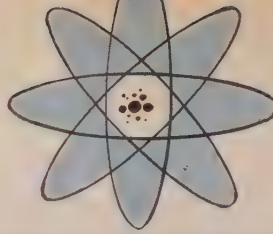


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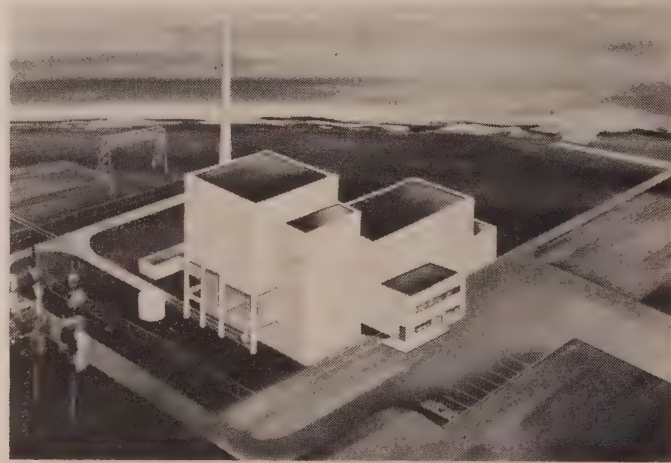


Globe-shaped reactor containment vessel (at right, above) has replaced taller, capsule-shaped structure considered earlier for Consumer Power Co.'s Big Rock Station. Major construction is underway.

ATOMIC INDUSTRY INTERESTS—considered by government and private business representatives to be of priority importance now—were reviewed in a meeting of the Atomic Industrial Forum's board of directors and top officials of the AEC. Here are the topics they covered: (1) the question of public attitudes on radiation hazards; (2) the need for bringing industrial experience and opinion to bear on the problem of formulating reactor safeguards criteria; (3) the need for simplifying AEC licensing and regulatory practices and the usefulness of industry's advice on their formulation and modification; (4) industry's interest in AEC procurement practices; (5) means of providing increased industrial participation in government-sponsored research and development programs; and (6) the need for a study of the adequacy of the Atomic Energy Act of 1954.

REACTOR SAFEGUARDS CRITERIA are to be studied by a newly established AIF ad hoc committee, which is expected to consider a program of activities suggested to the Forum by W. Kenneth Davis, a vice-president of Bechtel.

STATES' ATTORNEYS GENERAL were told last month by AEC Commissioner John S. Graham that their own state's emerging role in atomic energy may well depend on how each advises the Governor as to the necessity for legislation implementing regulatory responsibility. "Questions may well have to be answered before you will be in a position to recommend the legislation, if any, that must be enacted as a condition precedent to entering into an agreement with the AEC," he warned.



AEC's prototype nuclear power plant to be operated by Los Angeles Dept. of Water & Power and City of Pasadena (artist's conception above) will be General Electric 50,000-kw single-cycle forced circulation boiling water unit. The proposed arrangement calls for the municipally-owned utilities to operate the facilities for the AEC for at least five years.

NUCLEAR FUEL ELEMENTS need increasing attention from practical engineers "who will no longer bow fearfully to the directions of the nuclear physicists and the theoreticians of other scientific disciplines," proposed the AEC's Dr. R. C. Dalzell in a 1960 Gillett Memorial Lecture. He told a conference of ASTM members that the well-organized, broad-gauge effort to achieve early standardization in the nuclear field does not include the area of fuel elements. He noted that a choice of reactor types, as well as of fuel element designs for each reactor type cannot be made until adequate operating data are secured—so that standardization cannot be expected at this time.

ANTARCTICA A-POWER PLANS are being stepped up. A new contract for a 1500-kw reactor package, tested and erected at McMurdo Sound was expected to be drawn by August 1. Operation in early 1962 is specified in the bids issued recently on the project by the AEC. JCAE members who have been critical of the Administration's pace in this area reacted hopefully to this sign of a "break in the logjam on these projects." (Meanwhile, installation is nearly complete on the world's first prefabricated nuclear powerplant—PM-2A, built by ALCO Products, Inc.—for use at a remote military base—Camp Century in Greenland.)

ATOMIC INDUSTRY AUTOMATION is underway, General Electric reports. "Automated machinery has recently come into use by suppliers of components to the nuclear industry," says GE, "but, the industry itself has made only limited attempts to automate, until GE's APED facilities started widespread automation."



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"Meggers"—courtesy James G. Biddle Co., Philadelphia, Pa.

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ELP

31st Annual Major-Appliance Survey

A MAJOR COMEBACK in electric-appliance sales. That is the good news contained in the findings from EL&P's survey of the industry's performance in 1959 versus 1958.

In contrast to sizeable percentage drops in unit sales volumes for ranges, dryers, and air conditioners as reported last year for 1958 versus 1957, healthy gains were rung up for the entire gamut of electric appliances in 1959 as compared with 1958. This comparative sales-performance record is shown in Table I.

A total of 151 U. S. utilities and seven Canadian utilities contributed data for this report. However, composite analysis of the returns are confined to the U. S. group of utilities.

Sales records for all respondent utilities are given in detail in the accompanying tabulations.

Domestic electric customers served by the U. S. utilities which contributed data for this report total 39,652,287 as of Dec. 31, 1959—

Across-the-board gains in 1959 versus 1958 sales of major electric appliances are revealed in EL&P's 31st annual survey of industry performance in this important loadbuilding area.

nearly 81 percent of the U. S. total of 48,968,412 residential customers reported by EEI for that date.

As brought out in Table II, the percentage of respondent utilities engaged in direct sales of appliances to the public moved up again in 1959.

Analysis of composite figures for major appliances served by the respondent utilities as of Dec. 31, 1959, becomes more significant when compared with the report on 1958 performance. This is the score:

Appliance	Percent Acceptance	
	1958	1959
Ranges	27.8	26.8
Water Heaters	14.8	15.0
Dryers	10.5	10.8
Freezers	11.1	10.7
Air Conditioners	11.0	8.4

The foregoing tabulation shows that in some respects industry sales of major appliances are failing to keep pace with population growth.

With electric space-heating load continuing to grow in importance to the electric utilities, a check on utility activity in this field was included in this year's survey, as was done last year. The accompanying tabulated returns show that the respondent utilities now serve nearly 189,000 customers with built-in electric space-heating installations. Unfortunately, reports were not received from several of last year's respondents so that figures in this category are not strictly comparable.

The returns disclose a modest gain in the percentage of respondent

TABLE I

Comparative Sales-Performance Record For Respondent Utilities

APPLIANCES	1958	1959	PERCENT CHANGE
			1959 OVER 1958
Electric Ranges	1,036,022	1,164,479	+12.40
Electric Water Heaters....	534,317	574,548	+ 7.53
Electric Dryers	729,033	982,749	+34.80
Electric Home Freezers....	490,212	631,745	+28.87
Elec. Resid. Air Cond. (Room Units)	757,399	975,056	+28.74
Elec. Heat Pump Systems	11,720	19,734	+68.38

TABLE II

What's Happening In Utility Merchandising

YEAR	PERCENT OF RESPONDENT UTILITIES SELLING APPLIANCES TO THE PUBLIC
1959	37%
1958	36%
1957	33%
1956	39%
1955	47%

utilities with 100-amp minimum service-entrance requirements now established in all or a portion of their service territories; from nearly 69 percent in 1958 to over 71 percent in 1959.

Shift In Promotional Emphasis

A comparison of the data given in Table V with similar data reported last year discloses several significant shifts in promotional emphasis by the electric utilities. Electric home heating stands at the top promotional spot as it did last year, and water heaters again are in the number two spot, but surprisingly the number of utilities indicating markedly *less* emphasis on water-heater promotions jumped from one in 1959 to eight in 1960. A similar situation will be noted for electric dryers (the number three item promotion-wise, both last year and this), with the count for *less* emphasis jumping from one in 1958 to seven in 1959.

As will be further noted from examination of Table V, Gold Medallion homes have moved up to fourth place in *more* promotional emphasis. In last year's tabulation, Gold Medallion homes occupied ninth place. Next in increased promotional emphasis in 1960 come heat pumps and electric ranges (a count

TABLE III		
What's Happening In Electric Space Heating		
U. S. GEOGRAPHIC DIVISION	NO. OF RESPONDENT UTILITIES NOW PROMOTING ELECTRIC SPACE HEATING	NO. OF ELECTRIC SPACE HEATING CUSTOMERS NOW BEING SERVED BY RESPONDENT UTILITIES
Pacific	10	55,318 (2-N.A.)
Mountain	5	1,212 (1-N.A.)
West North Central.....	18 (6-d)	1,612
West South Central.....	14 (1-d)	2,515 (1-N.A.)
East North Central.....	16 (4-d)	22,741
East South Central.....	8	84,003
New England	9 (4-d)	672
Middle Atlantic	12 (8-d)	6,375
South Atlantic	15 (2-d)	14,515
	Total	188,963
N.A.—Number of respondent utilities who failed to list customers served.		
d—Number of respondent utilities promoting resistance type heating only.		

of ten for each), but the count for the utilities indicating *less* emphasis on these items also goes up in 1960; from one to four for heat pumps, 1959 versus 1960; and from three to seven for ranges, 1959 versus 1960.

A check was made again this year on utility practices in the financing of appliance purchases. A total of 63 of the respondents, or nearly 42 percent, finance pur-

chases by the public. Purchases by employees are financed by 104 respondents, or nearly 69 percent.

Some of these utilities place limitations on their financing of appliance purchases, such as (1) only on sales by the utility, (2) only certain appliances, (3) only on special promotions, etc.

(Tabulations begin on next page.)

TABLE IV	
What's Happening In Kilowatthour Usage By Domestic Electric Consumers	
YEAR	AVERAGE ANNUAL KWH CONSUMPT.ON BY CUSTOMERS OF RESPONDENT U. S. UTILITIES
1959	3846 kwh
1958	3709 kwh
1957	3481 kwh
1956	3257 kwh
1955	3116 kwh
GEOGRAPHIC DIVISION BREAKDOWN FOR THE YEAR 1959—	
Pacific	6986 kwh
Mountain	4322 kwh
West North Central.....	3332 kwh
West South Central.....	2902 kwh
East North Central.....	3774 kwh
East South Central.....	4762 kwh
New England	3107 kwh
Middle Atlantic	3180 kwh
South Atlantic	3933 kwh
Hawaii	3726 kwh

TABLE V		
Major Shifts In 1960 Utility Promotional Emphasis On Appliances Or Applications As Compared With Emphasis In 1959:		
APPLIANCE OR APPLICATION	NUMBER OF RESPONDENT UTILITIES INDICATING MARKEDLY MORE OR LESS EMPHASIS IN 1959	
	MORE	LESS
Electric Home Heating.....	47	—
Water Heaters	27	8
Electric Dryers	14	7
Gold Medallion Homes.....	11	4
Heat Pumps	10	4
Electric Ranges	10	7
Air Conditioning	9	6
Freezers	6	7
Medallion Homes	6	4
Dishwashers	5	7
Dehumidifiers	5	4
Adequate Wiring	5	4
Load Building	5	4

ELECTRIC LIGHT and POWER'S 31st

UTILITIES	Service Area in Square Miles	Domestic Electric Consumer on Resid. Rates, Dec. 31, 1959		Average Annual Kwh per Domestic Consumer		If Combined Gas, Electric Utility, Number of Domestic Gas Consumers 12/31/59	Est. % of Domestic Electric Consumers Having Piped Gas Available 12/31/59	ELECTRIC RANGES				ELECTRIC WATER HEATERS				ELECTRIC DRYERS			
		Number	Increase Over 12/31/58	12/31/59	Increase Over 12/31/58			Total Sales in 1959		On Resid. Rates Dec. 31, 1959		Total Sales in 1959		On Resid. Rates Dec. 31, 1959		Total Sales in 1959		On Resid. Rates Dec. 31, 1959	
								By Utility	By Others	Number	Percent Acceptance	By Utility	By Others	Number	Percent Acceptance	By Utility	By Others	Number	Percent Acceptance
ALABAMA																			
Alabama Power Co.	44,500	550,585	14,324	4,032	259		85.0	2,525	12,164	235,761	42.8	744	8,506	120,738	21.9	288	4,387	31,339	8
ARIZONA																			
Arizona Public Service Co. Tucson Gas, Elec. Lt. & Pr. Co., The	40,000	141,653 63,836	7,712 4,676	3,667 3,179	100 213	166,584 58,343	95.0 90.0	None	11,543 *1,000	32,482	22.3	None	1,813 *250	12,864	8.8	None	2,219 *350	8,544	5
ARKANSAS																			
Arkansas Power & Light Co.	18,250	264,610	6,628	2,501	177		N.A.		4,283		20.6		916		4.1		2,791		6
CALIFORNIA																			
Bureau of Elec., City of Alameda	24	14,411	444	2,488	38														
California Electric Power Co.	N.A.	89,738	7,199	2,760	61		None	99.0	None	600	4,645	32.2	None	5	255	1.8	None	130	16
California-Pacific Utilities Co.	N.A.	29,133	392	6,386	297			90.0	515	210			350	25		350	400		
City of Burbank Public Service Dept.	17	31,220	356	2,620	90	9,879		16.0		976		67.7		758		70.1	864	20	
City of Glendale Public Service Dept.	29	44,109	960	2,360	60			100.0		*120	*8,325	*27.0		*12		*2.6	150		
Dept. of Wtr. & Pr., City of Los Angeles	457	765,940	15,871	2,396	83		None	99.0	None	8,250	88,432	10.8	None	1,098	28,398	2.5	None		
Imperial Irrigation District	6,600	23,172	517	6,703	9			85.0	None	350	9,268	40.0	None	245	6,950	3.5	None	6,054	
Modesto Irrigation District	207	23,303	629	4,124	205			75.0	None				None			30.0	None	100	
Pacific Gas & Electric Co.	94,000	1,572,610	58,975	3,154	108	1,504,046		86.0	None	75,321	426,888	26.6	None	14,682	142,600	9.9	None		
Pasadena Municipal Lt. & Pr. Dept.	23	42,921	684	2,455	60			100.0	None	629	7,166	17.0	None	50	1,702	4.0	None	N.A.	
Sacramento Municipal Utility Dist.	656	134,044	10,610	3,821	224			85.0	None	12,794	59,489	44.4	None	2,591	12,482	9.3	None	N.A.	
San Diego Gas & Electric Co.	3,767	268,316	19,919	2,870	65	232,597		89.0	None	10,160			None	2,500			8,830	N.A.	
Southern California Edison Co.	20,350	1,353,046	65,151	2,485	125			95.0	None	28,000	214,000	15.8	None	2,400	70,356	5.2	None	50,805	
COLORADO																			
Colorado Central Power Co.	1,227	30,069	3,495	3,004	181		80.0	None	1,983	12,633	42.0	None	N.A.	2,311	7.0	None	521	15	
Public Service Co. of Colorado & Subsid.	N.A.	267,749	4,446	2,803	146	275,970	80.0	280	8,100		*20.0	158	2,000		*6.0	57	10,300	*19	
CONNECTICUT																			
Connecticut Lt. & Power Co., The United Illuminating Co.	3,173 311	303,799 173,836	8,431 2,537	3,563 3,413	139 182	80,226	34.0 82.0	664	8,000 5,519	126,000	41.4 39.4	1,297	2,294 2,075	58,200	19.1 16.1	282	6,512 4,499	46,000	15 13
DELAWARE																			
Delaware Pr. & Lt. Co. (Northern Div.)	437	79,304	1,943	3,814	265	55,709	70.0	97	1,200	24,700	31.2	62	500	12,000	15.1	136	400	6,650	
DISTRICT OF COLUMBIA																			
Potomac Electric Power Co.	643	306,139	7,799	3,574	327		95.0	None	9,910		18.3	None	931		2.7	None	8,470		12
FLORIDA																			
Florida Power & Light Co.	*15,000	612,815	39,561	4,297	90		41.5	None	37,427	343,770	56.1	None	60,088	368,915	60.2	None	7,911	8	
Florida Power Corp.	20,600	230,289	18,868	4,137	146		80.0	None	23,328	145,826	59.5	None	24,550	148,831	60.7	None	3,639	5	
Gulf Power Co.	7,400	84,936	5,185	4,357	259		50.0	513	4,712	38,560	45.4	107	3,270	30,407	35.8	86	1,290	7	
Tampa Electric Co.	1,700	131,818	7,800	4,840	165	None	18.0	None	10,982	90,543	69.0	None	10,269	92,688	71.0	None	1,900	7	
GEORGIA																			
Georgia Power Co.	57,160	612,223	24,091	3,985	149		60.0	3,600	32,550	332,750	54.4	3,060	7,090	193,400	31.6	1,340	5,785	N.A.	
HAWAII																			
Hawaiian Electric Co., Ltd. Hilo Electric Light Co., Ltd.	604 2,500	94,287 14,608	4,102 142	4,575 2,877	182 94		70.0 20.0	None	5,500 360		67.0 60.0	None	6,000 400		59.6 55.0	None	1,400 60		10. 10.
IDAHO																			
Idaho Power Co.	69,000	111,474	2,609	7,227	268		71.0	20	9,171	94,753	85.0	38	6,946	91,409	82.0	12	6,073	60,196	54

NOTE: Omissions in tabulated data indicate corresponding omissions in data furnished by respondent utility.
Appliance sales figures by other than utility are actual or estimated.

- * Estimated
- N.A. Not available
- a. Included with dryers
- b. Limited
- c. Negligible
- d. Resistance only
- e. Due to re-classification of rural and commercial accounts
- f. NEMA figure. Trend seems to be three times more freezers sold in '59 than '58. Two major distributors were checked to verify trend
- g. 1958 residential gas customers should have read 135,241 instead of 148,191
- h. By their sales companies
- j. On special water heating rates

- k. In rural non-natural gas territory only
- m. Lamp bulbs only as customer convenience
- n. As supplementary heating only
- o. As of October 1, 1957
- p. During special promotions only
- q. School change-out only
- r. Includes Telluride Power Co. and The Western Colorado Power Co.
- s. Free 100 amp service entrance to all new homes
- t. Water heaters only
- u. Supplied on rental basis
- v. Christmas only
- w. Six months of sales activity reported appliance merchandising discontinued in mid-year
- z. Decrease in number of consumers

- A. By municipal ordinance
- B. Handled by bank
- C. Handled by utility or utility ruling
- D. County ordinance
- E. During special promotions only
- F. 1959 National Electric Code
- G. State legislation
- H. Not required; but recommended
- I. North Dakota
- J. Practically 100% of new installations are 100 amp or larger. Promoted by utility and contractors
- K. Utility company with cooperation of fire underwriters
- L. Franklin County regulation
- M. Agreement by utility and inspection authorities

FOOT

ANNUAL MAJOR APPLIANCE SURVEY

ELECTRIC WASHER-DRYERS				ELEC. HOME FREEZERS				ELEC. RESID. AIR COND.				ELEC. HEAT-PUMP SYSTEMS				ELECTRIC SPACE-HEATING		100-Amp Space- (Min.) Service Entrance Required?		Utility's 1960 Electric Merchandising Policy		Have "Wire-On-Time" Plan?		Appliance or Application Receiving Markedly More or Less Emphasis in 1960	
Total Sales in 1959		On Resid. Rates Dec. 31, 1959		Total Sales in 1959		On Resid. Rates Dec. 31, 1959		Total Sales in 1959		On Resid. Rates in 1959		Total Sales in 1959		On Resid. Rates Dec. 31, 1959		Types Being Actively Promoted	No. of Consumers Now Being Served	Yes	No	Sales to Public	Sales to Employees	Yes	No	More	Less
By Utility	By Others	Number	Percent Acceptance	By Utility	By Others	Number	Percent Acceptance	No. of Central Systems	Compressor-Type Room Units	Number	Percent Acceptance	By Utility	By Others	Number	Percent Acceptance										
a	a	a	a	605	18,670	98,556	17.9	2,000	22,500	88,497	16.0		501	1,450	0.3	All	*2,750	A		Yes	Yes	B		1,2,3	
one	998 *150	2,550	1.8	None	3,829 *750	33,154	22.8	3,793 200	4,869 250	27,223	18.8	None	600 N.A.	3,669	2.5	All None	160 N.A.	P	X	No No	No Yes	C	X	4 20	
					6,875		24.5		12,200		21.0		1,958		3.5	All	1,000	A		No	No		X	5	
one 365	100 785 92 36	400	2.8 4.9	None 35	200 125 682 15	1,320	9.2 27.5	1 *8,500 120 8	50 *7,000 2,100 265	253	1.7	None None	1 *350 25 6	3		None All None All None	10 6,500 4,700	Yes A, W C	X	No Yes	No Yes Yes No	B	X X X X	2.6 3 3 3	34 1
	a	a		None	118,292 300	121,944 4,630	15.9 20.0	423 650 None	4,279 1,900	11,349 12,750	4.1 55.0	None None None	783 100	870 230	c c	All All None All	399 1,200 N.A. 11,900	A, 7 A, D A A	X X	No No No No	No No No No	C	X X X X	2,3,7 1	
one one one one	14,420 N.A. 2,474 1,575 N.A.	41,414 N.A. 7,132 N.A.	2.9 N.A. 5.3 N.A.	None None None None	40,488 None 3,666 7,150 N.A.	270,024 N.A. 33,113 231,350	18.7 N.A. 24.7 17.1	5,367 None None N.A.	16,378 None 9,687 5,100 N.A.	68,317 N.A. 19,359 87,900	4.4 N.A. 14.4 6.5	None None None None	1,278 N.A. 75 1,335	2,926 N.A. 140 3,835	c N.A. 0.1 0.3	All None All All	1,300 N.A. N.A.	A A A	No No No	No No Yes No			X X X X	7,20,29 5 21 5 7	None None 11 31,36 None
one 75	N.A. 2,900	N.A.	N.A.	None 85	N.A. 6,000	N.A.	22.0	N.A. 2	N.A. 1,561	N.A.	*5.0	None None	None N.A.			None None	6 28	C A		b	Yes b		X X	3 10	37
141	1,149 2,289	a	a 63.8	None	2,185 1,539	46,200	15.1 7.6	50	4,080 2,229	23,075	7.5 7.0		5	8		All d	74 62	A A		b No	b Yes	C C, E		1,21 1	None
20	125	845	1.1	28	300	5,128	6.5	375	1,200	13,375	16.8					d	16	C		Yes	Yes		X	None	None
one	1,260			None	7,760		13.7	1,024	27,100		31.5	None	7			All	103	A		No	No		X	7	
one a 68 one	2,143 a a 333	a a a	a a a	None None 73 None	6,175 2,600 1,310 1,776	52,090 18,477 16,395 26,209	8.5 8.0 19.3 20.0	1,878 2,189 507 863	45,090 9,190 2,062 6,027	136,042 49,468 18,302 40,382	24.0 21.4 21.6 30.4	None None None None	4,771 1,035 105 575	12,870 2,998 239 1,572	N.A. 1.3 0.3 1.2	None None All All	7,758 150 2,898	A X A, F	X X No	No No Yes No	No No Yes No	Y	X X X X	1 1 1 8	4 None
250	N.A.	N.A.		1,340	N.A.	N.A.		None	55,000			None	330	743	0.1	All	730	A		Yes	Yes	C		1	
one	461 20		4.0 3.0	None	2,100 200		16.0 37.0	2	400 25		2.0 2.0	None	2			None None	None None	A	X	No No	No No		X X	24 2,3	None
N.A.	N.A.	N.A.	N.A.	35	5,337	44,590	40.0	80	2,430	6,780		None	5	29		All	500		X	b	Yes	B, C		9	None

NOTES

- N. Builder program
 O. 200 amp entrance service minimum
 P. Sales promotion
 Q. By municipal ordinance—depending on number of customers
 R. Other—company's Reddy-Wiring program
 S. Trend favorable. Wiring allowance program requires 100 amp entrance. More and more local codes recommend 100 amp entrances
 T. 1959 Electric Code
 U. By joint decision of the utility, the Corp'n of Master Electricians and The Board of Electrical Examiners
 V. Promotional means: Red Seal and Medallion Homes
 W. Utility-contractor sales promotion
 X. Other
 Y. Employees only
 Z. Electric Service League

1. Water heaters
 2. Ranges
 3. Dryers
 4. Refrigerator-freezer combinations
 5. Heat pumps
 6. Service
 7. Gold Medallion Homes
 8. Resistance heating
 9. Electric heating
 10. Dishwashers
 11. Freezers
 12. Heating—dealer co-operative program including Gold Medallion, range, water heating, laundry and heating
 13. Dehumidifiers

14. Adequate wiring
 15. Conventional ranges
 16. Commercial uses
 17. Built-in range and oven
 18. Electric housewares
 19. All other
 20. Housepower
 21. Load building
 22. Outdoor lighting and Medallion Homes
 23. More on all
 24. Medallion Homes
 25. Traffic appliances
 26. Electric heating is being promoted by means of a cash bonus to the owner of the heating system
 27. Laundry; open house, Live Better Electrically program
 28. Electric refrigerators
 29. Lighting
 30. Air conditioning
 31. Radios
 32. Evaporative coolers
 33. Automatic washers
 34. Combination washer-dryers
 35. Washers
 36. TV
 37. Built-ins
 38. Total electric home
 39. Electric blankets

ELECTRIC LIGHT and POWER'S 31st

UTILITIES	Service Area in Square Miles	Domestic Electric Consumer on Resid. Rates, Dec. 31, 1959		Average Annual Kwh per Domestic Consumer		If Combined Gas Electric Utility, Number of Domestic Gas Consumers 12 31 59	Est. % of Domestic Electric Consumers Having Piped Gas Available 12 31 59	ELECTRIC RANGES				ELECTRIC WATER HEATERS				ELECTRIC DRYERS			
		Number	Increase Over 12 31 58	12 31 59	Increase Over 12 31 58			Total Sales in 1959		On Resid. Rates Dec. 31, 1959		Total Sales in 1959		On Resid. Rates Dec. 31, 1959		Total Sales in 1959		On Resid. Rates Dec. 31, 1959	
								By Utility	By Others	Number	Percent Acceptance	By Utility	By Others	Number	Percent Acceptance	By Utility	By Others	Number	Percent Acceptance
ILLINOIS																			
Central Ill. Elec. & Gas Co. (Rockford Div.)	530	58,985	1,393	3,253	236	43,416	74.0	None	1,187	10,286	17.0	None	617	7,172	12.0	None	1,119	8,475	12.0
Central Illinois Public Service Co.	23,323	198,926	2,637	2,847	223	44,164	48.0		3,837		30.5		2,119		21.0		4,559		
Commonwealth Edison Co.	11,000	1,815,742	41,536	2,954	206		94.0	281	*15,700	N.A.	N.A.	363	4,200	107,935	5.9	530	22,200	N.A.	N.A.
INDIANA																			
Indiana & Michigan Electric Co.	7,612	254,624	6,836	5,179	315		80.0	1,736	18,213	181,802	71.4	1,723	6,127	111,780	43.9	35	22,061	126,803	45.0
Indianapolis Power & Light Co.	420	188,622	5,238	3,978	192		90.0	236	7,164	70,815	37.5	295	3,305	33,210	17.6	107	4,493	35,650	18.0
Public Service Co. of Indiana, Inc.	18,000	323,847	2,978	3,795	234		60.0		11,482		52.5		4,742		33.0		N.A.		
Southern Indiana Gas & Electric Co.	*3,000	61,280	2550	3,937	242	40,510		75	1,226	N.A.	N.A.	40	224	16,154	26.4	37	1,100	N.A.	N.A.
IOWA																			
Interstate Power Co.	10,000	101,469	1,517	3,296	261	26,745	59.0	600	*2,000		31.0	416	*2,600		38.0	505	*3,000		19.0
Iowa Electric Light & Power Co.	14,000	122,051	2,225	3,776	571	57,660	60.0	903	3,500	N.A.	35.0	293	750	31,935	31.0	525	3,150		29.0
Iowa-Illinois Gas & Electric Co.	1,350	95,388	2,315	2,944	263	118,371	83.4	92	N.A.	14,426	17.6	31	N.A.	2,541	3.1	30	N.A.	9,590	11.0
Iowa Power & Light Co.	*5,600	144,742	2,465	3,317	255	91,044	70.0	238	2,600		33.0	90	1,100		23.0	137	1,800		20.0
Iowa Public Service Co.	13,900	106,922	1,362	3,241	266	72,140	64.6	None	1,477	27,108	25.3	None	526	22,521	21.0		1,721	N.A.	N.A.
Iowa Southern Utilities Co.	*6,900	64,928	384	2,711	234	15,911	26.0	242	852	55,750	28.0	157	555		24.0	114	1,290		13.0
KANSAS																			
Board of Public Utilities, Kansas City	40	39,000	None	2,720	25		99.8	None	440	6,250	17.0	None	10	940	2.3	None	150	600	1.0
Kansas Gas & Electric Co.	8,000	151,503	1,738	3,433	277		95.0	19	3,789	*43,607	*31.9	12	540	*3,896	*2.9	13	3,486	*28,378	*20.0
Western Light & Telephone Co., Inc.	2,760	40,174	819	2,641	275	4,408	75.0		1,212		33.0		125		5.4		1,321		31.0
KENTUCKY																			
Kentucky Power Co.	3,942	80,670	2,760	2,857	156		70.0	411	2,319	45,837	56.8	217	1,175	14,662	13.2	79	1,577	12,188	15.0
Kentucky Utilities Co.	10,000	200,032	4,338	2,872	107		65.0		*11,065	*88,414	*44.2		*4,271	*58,809	*29.4		*4,660	*23,403	*11.0
Louisville Gas & Electric Co., Inc.	700	171,486	4,528	3,117	184	151,800	89.0	None	4,820	31,000	18.1	None	450	16,019	9.3	None	2,870	21,000	12.0
LOUISIANA																			
Central Louisiana Electric Co.	13,713	82,314	406	2,520	188	33,872	65.0	122	1,982	10,901	13.2	59	170	*2,000	2.4	60	1,097	10,657	12.0
Louisiana Power & Light Co.	N.A.	211,815	7,856	3,009	312	None	80.0		5,000	34,980	16.5		1,000	6,000	2.8		5,500	29,560	13.0
New Orleans Public Service Co., Inc.	*49	156,337	1,496	3,498	304	157,954	98.0	None	3,100	6,000	3.8	None	c	c		None	2,600	6,400	
Southwestern Electric Power Co.	25,000	172,859	5,519	2,882	174		98.0		3,531		10.5		516		2.1		2,473		4.0
MAINE																			
Central Maine Power Co.	8,817	214,086	3,059	3,079	144		*19.0		5,000	N.A.	N.A.		2,700	55,650	26.0		3,500	N.A.	N.A.
Maine Public Service Co.	3,600	19,082	531	2,708	179		None	227	375	N.A.	N.A.	166	225	N.A.	N.A.	168	1,050	N.A.	N.A.
MARYLAND																			
Baltimore Gas & Electric Co.	2,283	472,983	10,683	2,727	194	362,255	77.0	313	6,587	82,400	17.4	159	3,391	39,300	8.3	191	5,384	35,325	7.0
Eastern Shore Public Service Co.	5,000	63,210	819	2,893	132		40.0	14	2,400	20,625	33.0	8	800	14,000	22.0	8	600	3,600	6.0
Polomac Edison Co., The	7,886	144,184	2,810	3,886	216		43.0	1,870	3,256	78,311	54.3	925	3,575	52,142	36.2	804	2,310	14,314	9.0
MASSACHUSETTS																			
Boston Edison Co.	587	418,000	3,000	2,480	118		95.0			8,000	27.0			1,100	6.3			8,000	8.0
Brockton Edison Co.	288	59,109	1,859	3,145	128	None	75.0	377	599	26,197	45.0	316	701	14,482	24.3	213	585	3,939	6.0
Fitchburg Gas & Electric Light Co.	*27	16,366	100	2,359	134	10,293	64.0	81	75	1,938	11.9	44	35	1,096	6.7	91	95	1,064	6.0
Gas & Electric Dept., City of Holyoke	76	17,070	140	1,880	105	14,500	100.0												
New England Electric System	4,600	739,296	8,629	2,408	129	229,200	75.0	3,600	11,000	236,000	32.0	1,837	2,400	53,000	7.2	2,262	7,000	66,000	9.0
Western Massachusetts Electric Co.	1,446	122,911	1,610	3,003	180		85.0		3,645	56,657	46.1		1,260	13,765	11.2		2,064	14,283	11.0

NOTE: Omissions in tabulated data indicate corresponding omissions in data furnished by respondent utility.
Appliance sales figures by other than utility are actual or estimated.

- * Estimated
- N.A. Not available
- a. Included with dryers
- b. Limited
- c. Negligible
- d. Resistance only
- e. Due to re-classification of rural and commercial accounts
- f. NEMA figure. Trend seems to be three times more freezers sold in '59 than '58. Two major distributors were checked to verify trend
- g. 1958 residential gas customers should have read 135,241 instead of 148,191
- h. By their sales companies
- j. On special water heating rates

- k. In rural non-natural gas territory only
- m. Lamp bulbs only as customer convenience
- n. As supplementary heating only
- o. As of October 1, 1957
- p. During special promotions only
- q. School change-out only
- r. Includes Telluride Power Co. and The Western Colorado Power Co.
- s. Free 100 amp service entrance to all new homes
- t. Water heaters only
- u. Supplied on rental basis
- v. Christmas only
- w. Six months of sales activity reported appliance merchandising discontinued in mid-year
- z. Decrease in number of consumers

- A. By municipal ordinance
- B. Handled by bank
- C. Handled by utility or utility ruling
- D. County ordinance
- E. During special promotions only
- F. 1959 National Electric Code
- G. State legislation
- H. Not required; but recommended
- I. North Dakota
- J. Practically 100% of new installations are 100 amp or larger. Promoted by utility and contractors
- K. Utility company with cooperation of fire underwriters
- L. Franklin County regulation
- M. Agreement by utility and inspection authorities

FOOT

ANNUAL MAJOR APPLIANCE SURVEY

ELECTRIC WASHER-DRYERS				ELEC. HOME FREEZERS				ELEC. RESID. AIR COND.				ELEC. HEAT-PUMP SYSTEMS				ELECTRIC SPACE-HEATING		100-Amp Space- (Min.) Service Entrance Required?		Utility's 1960 Electric Merchandising Policy		Have "Wire-On-Time" Plan?		Appliance or Application Receiving Markedly More or Less Emphasis in 1960	
Total Sales in 1959		On Resid. Rates Dec. 31, 1959		Total Sales in 1959		On Resid. Rates Dec. 31, 1959		Total Sales in 1959		On Resid. Rates in 1959		Total Sales in 1959		On Resid. Rates Dec. 31, 1959		Types Being Actively Promoted	No. of Consumers Now Being Served	Yes	No	Sales to Public	Sales to Employees	Yes	No	More	Less
By Utility	By Others	Number	Percent Acceptance	By Utility	By Others	Number	Percent Acceptance	No. of Central Systems	Compressor-Type Room Units	Number	Percent Acceptance	By Utility	By Others	Number	Percent Acceptance										
None	N.A.	N.A.		None	1,657	12,553	21.0	N.A.	1,328	11,830	20.0	None	N.A.	2		No	27	A		No	Yes		X	20	
a	656	N.A.	N.A.	150	5,054	N.A.	20.9	3,200	4,479	N.A.	15.0	5	N.A.	17		All	177	A, C	X	No	No	C	X	1,10,11	None
					15,300		N.A.		33,003		N.A.	30		98			2,434			Yes	Yes				
N.A.	592	N.A.	N.A.	35	3,085	N.A.	19.8	N.A.	3,200	N.A.	10.5	N.A.	N.A.	46	c	All	1,361	A, C		Yes	Yes		X	1,3	
None	N.A.	N.A.		3	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.		None	N.A.	9		All	1,178	A	X	Yes	No		X	9	19
	252				1,237		N.A.	139	1,832		N.A.	1	N.A.	c		d	110			No	Yes		X	9,30	
21	*300			101	*2,500		25.0		*2,500							d	50	G		Yes	Yes	Y	X	3	None
33	350			140	1,550		32.5		3,286		10.0	4				All	314	A, C		Yes	Yes		X	9	18
49	N.A.	1,639	20	127	N.A.	18,606	22.7	N.A.	N.A.	15,983	19.5	N.A.	N.A.	None		None				Yes	Yes		X	None	None
28	600			91	1,200		32.0	200	5,494		22.0	None	N.A.			All	60	A		Yes	Yes	C	X	30	2
N.A.	N.A.			N.A.	N.A.		N.A.	N.A.	1,579	N.A.	17.0	3				None	28	A		Yes	Yes		X	None	None
18	276		4.0	81	500		18.0		607							d	150	A		Yes	Yes		X		
None	40	150	0.1	None	250	3,200	.8	150	500	7,000	16.0	None	20	130	c	d	5		X	No	No		X	14	1
	871	3,004	2.2	4	3,250	38,564	28.2	706	6,061	60,814	44.5	9		55	0.4	All	205	A		No	Yes		X	13	
	350		N.A.		1,565		26.0	238	1,549		40.0					All	16	A		No	Yes		X	9	
None	80	165	N.A.		1,200	14,200	17.6	10	800	4,336	5.3	15	32			All	282		X	No	No		X	9	None
	1,123	N.A.	N.A.	None	7,655	39,206	19.6	145	3,946	22,603	11.3	16	28	c		All	224	C		No	No		X	9	
	530	2,600	1.5		2,550	27,600	16.1	500	5,200	26,600	15.5	1	1			None	78	A		No	No		X	14	
None	N.A.	N.A.	N.A.	None	1,128	26,313	31.0	N.A.	N.A.	N.A.	N.A.	None	60	167	0.2	All	167		X	b	Yes	C	X	1,7	3,15
	1,500	7,210	3.4	None	8,000	84,280	39.8	N.A.	N.A.	N.A.	N.A.	None	47	134	c	All	65		X	No	No		X	9	
None	750	2,000	1.3		5,400	26,300	16.8	N.A.	25,500	80,000	25.6	30	90	c		None	N.A.		X	b	b		X	5	18
	866		1.0		8,882		22.2	1,376	10,304		38.6	149			c	All	20		X	Yes	Yes		X	9	
4	600	N.A.	N.A.	51	2,000	N.A.	N.A.		14	N.A.	N.A.	None	None	N.A.	N.A.	All	100	H		m	m		X	9	28
	68	N.A.			110	N.A.										None	4		X	Yes	Yes		X	2	
35	N.A.	N.A.	N.A.	542	4,908	61,950	13.1	1,519	15,000	89,362	18.9	None	1	7		d	387			Yes	Yes			9	3
1	200	750	1.0	8	700	12,200	19.0	25	1,006	10,600	17.1	2	6			All	83	C	X	Yes	Yes	C	X	9	None
1,121	4,807	24,200	16.0	547	2,258	22,597	15.0		2,250	12,350	8.5	4	3	17		All	193	C		Yes	Yes		X	3,9	
5	111	1,500		12	65	2,000	8.5	5	100	7,000	11.0					All	3	A		Yes	Yes		X	21	
16	5	.103	0.6	9	15	483	0.9	15	93	716	4.0	None	None	None	None	d	3		X	Yes	Yes		X	23	None
200	800	3,000	0.4	184	1,500	22,000	3.0	N.A.	5,237	21,000	2.8			3		All	5	A		No	No	C	X	30	
					2,365	18,642	15.2		1,113							d	124	C	X	Yes	Yes		X	9,13	35
																All	280			Yes	Yes		X	1	

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- S. Trend favorable. Wiring allowance program requires 100 amp entrance. More and more local codes recommend 100 amp entrances
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		Number	Increase Over 12 31 58	12 31 59	Increase Over 12 31 58			Total Sales in 1959		On Resid. Rates Dec. 31, 1959		Total Sales in 1959		On Resid. Rates Dec. 31, 1959		Total Sales in 1959		On Resid. Rates Dec. 31, 1959	
								By Utility	By Others	Number	Percent Acceptance	By Utility	By Others	Number	Percent Acceptance	By Utility	By Others	Number	Percent Acceptance
MICHIGAN Board of Water & Light, City of Lansing Consumers Power Co. Detroit Edison Co., The	57 26,899 7,587	41,216 762,348 1,154,326	728 15,948 20,181	4,286 4,096 3,412	166 171 201		95.0 44.0 87.0	3 3,800 1,100	1,615 26,100 23,300	37,546 366,737 488,279	91.0 49.1 42.3	8 1,000 11,600	404 27,200 7,400	12,805 246,183 138,219	31.0 33.0 12.0	4 1,500 800	1,715 40,100 11,060	16,279 160,963 245,871	39.0 21.0 21.0
MINNESOTA Minnesota Power & Light Co. Northern States Pwr. Co. (Minn.) & Subsid. Otter Tail Power Co.		69,349 613,921 78,392	450 16,213 1,029	4,125 3,463 3,577	249 234 237		80.0 80.0 315	576 2,775 h556	1,983 31,200 835	38,173 180,000 h556	55.4 31.0 50.9	750 2,057 h69	1,159 7,500 1,006	25,374 124,000 h69	36.8 21.0 41.4	256 1,242 h195	1,656 188,000 1,699	13,171 105,000 h195	19.1 18.0 17.3
MISSISSIPPI Mississippi Power & Light Co. Mississippi Power Co.	23,000 11,500	154,730 91,406	3,166 2,872	2,760 3,138	255 303		70.0 80.0		3,500 640	41,700 19,337	27.0 21.2	100 175	*750 300	5,000 5,885	3.2 6.4		3,000 360	11,300 4,725	7.3 5.2
MISSOURI Empire District Electric Co., The Kansas City Power & Light Co. Missouri Edison Co. Missouri Power & Light Co. St. Joseph Light & Power Co. Union Electric Co.	10,000 5,646 2,194 12,899 3,470 4,071	57,488 226,603 13,850 55,356 38,721 536,120	759 6,527 1,008 725 252 11,310	2,390 3,106 2,639 2,524 3,016 3,570	124 243 190 234 205 264	None None 1,506 20,046 2,007 11,072	70.0 *98.0 24.0 41.4 64.0 93.0	80 82 None 771 185 None	1,454 *5,810 61 771 440 13,400	10,757 *54,800 2,387 16,179 10,202 150,000	18.7 *26.0 17.2 29.2 26.0 28.0	None 4 None 505 28 3,185	576 130 59 505 150 h55,568	6,451 *7,762 2,253 10,018 4,075 h55,568	11.2 *3.7 16.4 17.9 10.0 10.4	20 *57 None 675 100 None	1,069 3,447 117 675 250 6,600	N.A. *13,700 576 5,264 4,197 80,000	N.A. *6.5 3.5 9.5 11.0 14.9
MONTANA Montana Power Co., The	90,000	127,290	2,177	3,991	245	54,782			5,800				1,400				5,300		
NEBRASKA Consumers Public Power District Omaha Public Power District	53,000 2,500	97,747 107,484	1,900 3,051	3,298 4,067	263 445		70.0 90.0	781	*4,000 5,027		44.0 39.2	367	*1,000 1,004		34.0 15.0	480	*2,000 2,942		22.0 19.7
NEVADA Sierra Pacific Power Co. Southern Nevada Power Co.	15,000 1,600	37,366 28,277	3,210 2,097	5,045 10,231	240 371	8,658	25.0 30.0	None 25	N.A. 1,304		N.A. N.A.	None None	N.A. 2,844		N.A. N.A.	None None	N.A. 312		N.A. N.A.
NEW HAMPSHIRE Pub. Serv. Co. of New Hampshire & Subsid.	5,500	148,015	2,735	2,899	141		23.0	856	*2,224	69,567	47.0	1,380	1,161	27,176	18.0	339	*2,561	16,281	11
NEW JERSEY Atlantic City Electric Co. Jersey Central Power & Light Co. New Jersey Power & Light Co. Public Service Electric & Gas Co.	2,700 1,528 1,728 1,400	169,636 232,775 96,969 1,221,264	5,718 10,766 2,750 21,818	3,583 3,388 3,633 2,414	184 210 164 168		85.0 80.0 20.0 95.0	884	3,873 4,401 3,443 N.A.	102,918 59,673 45,204 121,900	59.4 25.6 46.6 10.1	441	2,630 3,325 2,173 N.A.	68,522 43,565 26,404 25,300	39.6 18.7 27.2 2.1	None None 2,182 N.A.	2,858 5,641 10,092 N.A.	31,480 N.A. 10,092 78,400	18.2 N.A. 10.4 6.5
NEW MEXICO Public Service Co. of New Mexico	2,500	86,284	5,474	2,708	182		98.0	25	2,712	N.A.	N.A.	5	398	N.A.	N.A.	35	1,644	N.A.	N.A.
NEW YORK Central Hudson Gas & Electric Corp. Consolidated Edison Co. of New York, Inc. Long Island Lighting Co. New York State Electric & Gas Corp. Niagara Mohawk Power Corp. Orange & Rockland Utilities, Inc. Rochester Gas & Electric Corp.	2,500 593 1,230 17,000 22,543 1,350 1,953	113,786 2,354,690 511,954 406,000 964,137 104,496 178,021	2,642 11,882 21,760 8,100 13,701 5,634 2,761	3,115 1,787 3,303 3,466 3,450 2,602 3,305	166 111 185 141 169 150 170	38,017 1,190,765 301,672 90,400 324,885 45,853 144,125	33.4 99.5 59.0 47.0 69.5 43.7 91.0		1,800 7,700 12,307 9,100 21,757 61 480		32.0 N.A. 27.0 32.6 37.5 N.A. 36.0		843 N.A. *675 3,700 6,764 N.A. 1,051		20.0 N.A. 4.9 17.0 14.2 N.A. 14.0		N.A. 10,600 13,828 7,800 20,196 N.A. 4,599		10.0 N.A. N.A. 17.5 19.2 N.A. 26.0
NORTH CAROLINA Carolina Power & Light Co. Duke Power Co.	30,000 20,000	371,891 613,974	7,547 20,661	5,064 5,041	212 183		35.0 25.0		26,229 50,000	271,261 436,554	76.0 71.1	4,139	20,499 45,000	233,898 365,451	65.0 60.0	473	2,029 5,000	17,090 30,700	5.0 4.9

NOTE: Omissions in tabulated data indicate corresponding omissions in data furnished by respondent utility.
Appliance sales figures by other than utility are actual or estimated.

- * Estimated
- N.A. Not available
- a. Included with dryers
- b. Limited
- c. Negligible
- d. Resistance only
- e. Due to re-classification of rural and commercial accounts
- f. NEMA figure. Trend seems to be three times more freezers sold in '59 than '58. Two major distributors were checked to verify trend
- g. 1958 residential gas customers should have read 135,241 instead of 148,191
- h. By their sales companies
- j. On special water heating rates

- k. In rural non-natural gas territory only
- m. Lamp bulbs only as customer convenience
- n. As supplementary heating only
- o. As of October 1, 1957
- p. During special promotions only
- q. School change-out only
- r. Includes Telluride Power Co. and The Western Colorado Power Co.
- s. Free 100 amp service entrance to all new homes
- t. Water heaters only
- u. Supplied on rental basis
- v. Christmas only
- w. Six months of sales activity reported—appliance merchandising discontinued in mid-year
- z. Decrease in number of consumers

- A. By municipal ordinance
- B. Handled by bank
- C. Handled by utility or utility ruling
- D. County ordinance
- E. During special promotions only
- F. 1959 National Electric Code
- G. State legislation
- H. Not required; but recommended
- I. North Dakota
- J. Practically 100% of new installations are 100 amp or larger. Promoted by utility and contractors
- K. Utility company with cooperation of fire underwriters
- L. Franklin County regulation
- M. Agreement by utility and inspection authorities

FOOT

ANNUAL MAJOR APPLIANCE SURVEY

ELECTRIC WASHER-DRYERS				ELEC. HOME FREEZERS				ELEC. RESID. AIR COND.				ELEC. HEAT-PUMP SYSTEMS				ELECTRIC SPACE-HEATING		100-Amp Space- (Min.) Service Entrance Required?		Utility's 1960 Electric Merchandising Policy		Have "Wire-On-Time" Plan?		Appliance or Application Receiving Markedly More or Less Emphasis in 1960	
Total Sales in 1959		On Resid. Rates Dec. 31, 1959		Total Sales in 1959		On Resid. Rates Dec. 31, 1959		Total Sales in 1959		On Resid. Rates in 1959		Total Sales in 1959		On Resid. Rates Dec. 31, 1959											
By Utility	By Others	Number	Percent Acceptance	By Utility	By Others	Number	Percent Acceptance	No. of Central Systems	Compressor-Type Room Units	Number	Percent Acceptance	By Utility	By Others	Number	Percent Acceptance	Types Being Actively Promoted	No. of Consumers Now Being Served	Yes	No	Sales to Public	Sales to Employees	Yes	No	More	Less
one N.A. 100	N.A. N.A. 3,130	N.A. N.A. 27,703	N.A. N.A. 2.4	None 600 440	540 24,800 12,180	13,116 181,071 196,235	32.0 24.3 17.0	N.A. 15,150 500	N.A. 15,090 11,275	N.A. 15,090 17,545	N.A. 2.0 15.2	None N.A. *9	N.A. N.A. 11	N.A. c c	N.A. d All	143 1,223 1,700	A, C A, C, G A, C			Yes Yes Yes	Yes Yes Yes	C, Y	X X X	17 None 1	1 None None
a one N.A.	a N.A. 4,000	a N.A. 8,500	a N.A. 1.5	83 516 155	1,546 13,500 1,664	N.A. 108,000 108,000	N.A. 19.0 21.6	N.A. 1,700 1,700	N.A. 15,131 221	N.A. 54,700 54,700	N.A. 9.7 1.1	None None None	None 5 8	None None None	d None All	39 210 57	A A I			Yes Yes No	Yes Yes p	B, C, X B X		1,2,3 24 1	
N.A. 2	N.A. 200	N.A. 402	N.A. 0.3	139	5,000 2,500	54,000 21,561	35.0 23.6	1,000 None	3,500 3,120	45,300 19,650	29.0 21.5		200 400 133	0.3 0.2	All None	600 N.A.	A X	t Yes	Yes Yes		X S	1,38 3			
one 17 one	199 *800 6	N.A. *2,400 9	N.A. *1.0	10 38 None	2,503 *2,000 90	N.A. *32,590 1,842	N.A. *15.0 13.3	N.A. *2,502 25	1,829 15,063 350	N.A. *79,100 1,440	N.A. *37.5 10.4	3 None None	None 6 5	c 15 c	All All All	82 43 25	A X V	Yes Yes	Yes Yes	C	X X X	9 1,9 9	10 None 33		
one one	150 1,200	450 6,400	1.0 1.2	47 None	160 6,860	5,207 106,260	13.0 19.8	50	367 24,620	6,437 204,410	16.8 28.7	None None None	1 24	17 147	All All All	31 120	J	X No	Yes No	Yes No	C, Y		None None		
	1,000			2,200											None		A		No	No	B, C				
60	*600 N.A.	N.A.	N.A.	227 1,602	*2,000 18,962	30.0 17.6	N.A. 378	*3.401 3,694	30,487	22.0 28.3		*10 5	6	d All	160 75	A A	X No	Yes Yes	Yes Yes	B	X	7,9	28		
one one	N.A. 168	N.A.	N.A.	None None	N.A. 585	N.A.	N.A.	None 142	N.A. 366	N.A.	N.A.	None None	N.A. 1,472	N.A.	None All	N.A. N.A.	A A		No No	q No		X	N.A.	N.A.	
83	*317	N.A.	N.A.	29	*1,071	13,321	9.0	N.A.	*540	2,960	2.0	None	None	None	d	21	X	Yes	Yes		X	None	None		
one N.A.	a N.A. N.A.	a N.A. N.A.	a N.A. N.A.	None 1,884 3,320 1,066	N.A. N.A. 8,242	N.A. N.A. 8,242	N.A. N.A. 8.5	N.A. N.A. N.A.	N.A. 7,069 1,210	N.A. N.A. N.A.	N.A. N.A. 29.2	None None None	None None None	115 4 2	d d d	2,400 150 91 77	P X X	No No No	Yes v v No		X X X X	1 9 9 10	3 10 10		
a	350	N.A.	N.A.	45	4,722	N.A.	N.A.	200	410	N.A.	N.A.	1	6	3	None	None	A		Yes		X	22			
one one 8 73	N.A. N.A. 1,417 2,605 N.A. 1,127	N.A. N.A. N.A. 6,992 N.A.	1.0 N.A. N.A. 0.7 N.A.	None 8,500 7,562 5,300 9,914 18 214	N.A. N.A. 72,000 85,007 N.A. 3,586	N.A. N.A. 72,000 85,007 N.A. 20.0	14.0 N.A. 17.5 8.9 N.A. 20.0	N.A. 2,300 1,546 120	N.A. 80,800 17,637 1,800 10,534 40 N.A.	N.A. N.A. N.A. N.A. N.A. 8.0	None None None None None	None None 1 N.A. None	N.A. 10 2 N.A.	None None All None d	*30 98 *1,100 225 C 1,216 *30 335	C A C C C K	No No No No Yes Yes	No No No Yes Yes		X X X X X B	13 11 1 9,30 11 None	None None 30 39 None			
one	21,832 500	165,126 2,272	46.0 0.4	984	9,218 15,000	122,310 113,590	34.0 18.5	426 1,842	10,594 8,228	65,218 48,506	18.6 7.9	None	214 329	502 694	0.1 c	All All	1,274 1,011	A A	Yes	Yes Yes	C	X	9,24 9	1,2,11 29	

NOTES

- N. Builder program
- O. 200 amp entrance service minimum
- P. Sales promotion
- Q. By municipal ordinance --depending on number of customers
- R. Other --company's Reddy-Wiring program
- S. Trend favorable. Wiring allowance program requires 100 amp entrance. More and more local codes recommend 100 amp entrances
- T. 1959 Electric Code
- U. By joint decision of the utility, the Corp'n of Master Electricians and The Board of Electrical Examiners
- V. Promotional means: Red Seal and Medallion Homes
- W. Utility-contractor sales promotion
- X. Other
- Y. Employees only
- Z. Electric Service League

1. Water heaters
2. Ranges
3. Dryers
4. Refrigerator-freezer combinations
5. Heat pumps
6. Service
7. Gold Medallion Homes
8. Resistance heating
9. Electric heating
10. Dishwashers
11. Freezers
12. Heating --dealer co-operative program including Gold Medallion, range, water heating, laundry and heating
13. Dehumidifiers
14. Adequate wiring
15. Conventional ranges
16. Commercial uses
17. Built-in range and oven
18. Electric housewares
19. All other
20. Housepower
21. Load building
22. Outdoor lighting and Medallion Homes
23. More on all
24. Medallion Homes
25. Traffic appliances
26. Electric heating is being promoted by means of a cash bonus to the owner of the heating system

27. Laundry; open house, Live Better Electrically program
28. Electric refrigerators
29. Lighting
30. Air conditioning
31. Radios
32. Evaporative coolers
33. Automatic washers
34. Combination washer-dryers
35. Washers
36. TV
37. Built-ins
38. Total electric home
39. Electric blankets

ELECTRIC LIGHT and POWER'S 31st

UTILITIES	Service Area in Square Miles	Domestic Electric Consumer on Resid. Rates, Dec. 31, 1959		Average Annual Kwh per Domestic Consumer		If Combined Gas Electric Utility, Number of Domestic Gas Consumers 12 31 59	Est. % of Domestic Electric Consumers Having Piped Gas Available 12 31 59	ELECTRIC RANGES				ELECTRIC WATER HEATERS				ELECTRIC DRYERS			
		Number	Increase Over 12/31 58	12 31 59	Increase Over 12 31 58			Total Sales in 1959		On Resid. Rates Dec. 31, 1959		Total Sales in 1959		On Resid. Rates Dec. 31, 1959		Total Sales in 1959		On Resid. Rates Dec. 31, 1959	
								By Utility	By Others	Number	Percent Acceptance	By Utility	By Others	Number	Percent Acceptance	By Utility	By Others	Number	Percent Acceptance
OHIO																			
Cincinnati Gas & Electric Co., The	2,600	370,518	8,726	3,319	236	275,754	74.0	None	10,823	76,021	20.5	None	5,069	50,865	13.7	None	8,275	56,641	13.7
Cleveland Electric Illuminating Co.	1,700	497,582	11,334	3,376	155		96.0		10,484	155,000	30.0		*2,600	60,000	12.0		11,763	114,000	9.8
Columbus & Southern Ohio Electric Co.	6,200	240,827	6,219	3,161	186		*89.5	None	9,277	74,175	30.8	None	1,955	21,193	8.8	None	9,487	74,656	30.8
Dayton Power & Light Co., The	6,041	233,987	6,313	3,620	217	171,693	69.9	748	*7,367	*83,065	*35.5	1,000	*2,125	*38,605	*16.5	776	*8,220	*75,110	*33.5
Ohio Edison Co.	7,426	523,068	11,193	3,774	179		75.0	2,972	14,100	242,200	46.3	606	2,700	77,500	14.8	1,510	13,850	113,900	21.2
Ohio Power Co.	7,264	401,187	5,397	4,085	256		85.0	3,027	20,148	240,700	60.0	1,667	5,728	108,300	27.0	1,248	19,427	144,400	33.3
Toledo Edison Co., The	2,500	172,347	3,731	3,899	201	3,669	70.0	None	5,815	88,347	51.0	None	987	32,228	19.0	None	4,871	59,291	33.3
OKLAHOMA																			
Oklahoma Gas & Electric Co.	30,000	291,603	4,594	2,607	107		95.0	None	7,172	49,501	17.0	None	633	4,084	1.4	None	4,771	25,755	1.4
Public Service Co. of Oklahoma	30,000	217,439	3,636	2,711	135		*90.0	None	6,216	51,160	23.5	None	697	2,937	1.4	None	3,733	18,031	1.4
OREGON																			
California Oregon Power Co., The	50,000	73,349	2,192	9,106	473		N.A.	None	4,099	57,549	77.4	None	3,193	55,080	74.1	None	4,524	N.A.	N.A.
Pacific Power & Light Co.	15,097	251,231	7,351	7,621	624		50.0	None	19,349		72.0	None	11,669		68.0	None	20,155		45.0
Portland General Electric Co.	2,700	221,977	5,417	9,186	693		83.0		12,500	190,900	86.0		11,000	179,800	84.0		14,500	102,100	41.0
PENNSYLVANIA																			
Duquesne Light Co.	817	426,242	5,435	2,933	138		98.0		11,246	119,847	28.0		348	9,959	2.0		11,045	106,275	28.0
Luzerne Electric Div.—UGI		39,350	325	2,100	100				200	N.A.			199	3,550	10.0		173		
Metropolitan Edison Co.	3,274	221,189	3,963	3,732	208		66.0	None	7,164		57.1	None	3,975		28.2	None	6,684	38,251	27.8
Pennsylvania Electric Co.	17,500	353,158	2,961	3,211	148		66.0	None	10,026		45.3	None	6,865		20.5	None	12,579		28.0
Pennsylvania Power & Light Co.	10,000	620,907	8,794	3,238	185	None	69.0	221	15,814	291,826	47.0	78	8,557	145,913	23.5	131	15,550	93,136	15.1
Pennsylvania Power Co.	1,394	78,266	1,303	3,952	164		80.0	239	2,316	33,200	42.4	116	761	15,099	19.3	174	2,532	24,900	31.0
Philadelphia Elec. Co. System	2,340	899,521	12,617	3,320	218	211,356	93.0	1,666	14,393	270,200	30.0	1,059	5,817	113,703	12.6	897	12,349	137,257	13.1
West Penn Power Co.	8,775	341,955	5,390	3,752	189		75.0		9,030	143,887	42.1		5,460	74,967	21.9		14,470	102,400	23.1
RHODE ISLAND																			
Newport Electric Corp.	55	15,490	125	3,593	137			143	420		66.0	6	250		33.0	20	160		27.0
SOUTH CAROLINA																			
South Carolina Electric & Gas Co.	14,000	159,370	4,328	4,943	223	40,192	25.0		10,000	65,000	41.0		12,000	49,000	31.0		5,000	11,000	7.0
SOUTH DAKOTA																			
Black Hills Power & Light Co.	8,000	24,838	1,201	3,424	240	None	88.0	240	560	12,160	52.0	289	50	4,487	21.0	128	675	4,200	18.0
Northwestern Public Service Co.	10,000	32,102	31,634	3,718	250	12,145	50.0	300	1,200	15,000	51.0	277	1,100	12,000	40.0	153	1,000	5,000	17.0
TENNESSEE																			
Electric Power Board of Chattanooga	500	74,810	1,501	12,720	243				4,744		90.0		5,449		82.0		3,161		23.0
Kingsport Utilities, Inc.	400	19,045	595	8,072	321		25.0	None	781	16,200	85.0	None	904	15,200	80.0	None	628	4,500	23.0
Memphis Light, Gas & Water Div.	800	158,457	5,519	4,054	394	147,597	93.0	None	3,200		17.0	None	600		6.0	None	1,500		16.0
Nashville Electric Service	640	111,865	3,717	11,622	453		65.0		7,400	106,117	95.0		5,750	79,107	71.0		3,787	19,563	18.0
TEXAS																			
Central Power & Light Co.	43,700	200,713	5,088	3,181	262		95.0	None	8,268	41,148	20.5		2,880	9,002	4.5		5,621	*14,211	7.0
City Public Service Board, San Antonio	1,566	161,451	5,477	2,987	227	141,997	90.6	None	2,972	18,569	12.0	None	890	4,009	2.0	None	1,453	7,692	5.0
Dallas Power & Light Co.	284	221,229	9,881	4,374	54		100.0	None	7,737	58,608	26.5		77			None	2,992	19,230	8.0
El Paso Electric Co.	2,500	82,463	6,595	3,574	21		90.0	113	3,357	30,259	36.7	161	3,464	26,181	31.7	23	1,296	5,790	7.0
Gulf States Utilities Co.	28,000	252,946	6,672	3,688	320	52,690	85.0	619	1,335	74,890	29.6	600	1,958	19,511	7.7	196	6,290	28,200	10.0
Houston Lighting & Power Co.	5,600	408,226	13,400	4,902	261		95.0		10,339		12.0		640		1.0		6,325		10.0
Southwestern Public Service Co.	45,000	156,455	7,364	2,814	133	None	96.0	None	6,393		N.A.	None	1,394		N.A.	None	7,172		10.0
Texas Electric Service Co.	35,200	273,682	8,883	3,432	135		N.A.	None	9,261	50,261	18.4	None	160	1,360	0.5	None	6,463	30,042	11.0
Texas Power & Light Co.	37,400	307,382	9,216	2,853	161		N.A.	None	6,976	45,826	14.9	None	413	841	0.3	None	7,066	N.A.	N.A.
West Texas Utilities Co.	52,830	87,264	3,212	2,908	123			1,142		20,167	23.1	400		5,572	6.4	382			

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- a. Included with dryers
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- A. By municipal ordinance
- B. Handled by bank
- C. Handled by utility or utility ruling
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- L. Franklin County regulation
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FOOT

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ELECTRIC WASHER-DRYERS				ELEC. HOME FREEZERS				ELEC. RESID. AIR COND.				ELEC. HEAT-PUMP SYSTEMS				ELECTRIC SPACE-HEATING		100-Amp Space- (Min.) Service Entrance Required?		Utility's 1960 Electric Merchandising Policy		Have "Wire-On-Time" Plan?		Appliance or Application Receiving Markedly More or Less Emphasis in 1960	
Total Sales in 1959		On Resid. Rates Dec. 31, 1959		Total Sales in 1959		On Resid. Rates Dec. 31, 1959		Total Sales in 1959		On Resid. Rates in 1959		Total Sales in 1959		On Resid. Rates Dec. 31, 1959		Types Being Actively Promoted	No. of Consumers Now Being Served	Yes	No	Sales to Public	Sales to Employees	Yes	No	More	Less
By Utility	By Others	Number	Percent Acceptance	By Utility	By Others	Number	Percent Acceptance	No. of Central Systems	Compressor-Type Room Units	Number	Percent Acceptance	By Utility	By Others	Number	Percent Acceptance										
None	1,152	N.A.	N.A.	None	6,078	77,209	20.8	*1,100	12,049	47,106	12.7	None	4	12		All	119		X	No	No	C		7	None
	1,800	5,000	*1.0		6,998	84,000	15.0	541	11,338	43,500	9.0		7	80	c	All	1,911	A		No	No	C		14	None
	762	N.A.	N.A.	None	2,209	33,412	13.9	N.A.	5,123	25,768	10.7	None	12	N.A.	N.A.	All	195	A, D		No	No		X	9	None
		N.A.	N.A.		*5,500	*44,925	*19.2	N.A.	*3,120	*33,925	*7.4	None				All	126	C, M		No	No	B		3,30	
26	1,525	3,850	0.7	406	8,950	67,000	12.8	N.A.	4,504	33,000	6.3	None	None	9		All	408	A, M		Yes	Yes		X	7,9	None
	1,250	N.A.	N.A.		6,200	N.A.	N.A.	N.A.	2,700	N.A.	N.A.		35	228		All	4,976	C		No	No	C		None	None
	769	3,188	2.0	None	2,357	34,091	20.0	N.A.	1,342	6,074	3.5	None	None			None	350		X				X		
	a			None	5,924	44,147	15.2	1,472	10,100	89,073	23.9	None	78	200	c	All	22	N		No	No		X	9,25	
	a			None	4,500	24,895	11.5	1,200	12,550	90,750	41.7	None	45	183	c	All	310		X				X	9	
	656	N.A.	N.A.	None	2,443	N.A.	N.A.	50	813	N.A.	N.A.	None	22	N.A.	N.A.	All	16,519		X	No	No	B		5	
	13,640	N.A.	N.A.	None	13,640	81,265	20.0	N.A.	2,360	N.A.	N.A.	None	38	78		None	N.A.	A		No	No	C		7	
	697				5,405	51,638	12.0	946	9,013	50,698	12.0			2		All	93	C			p		X	9	30
	89				3,561		27.2	N.A.	5,024	N.A.	11.8	None	None	2		None	524	C		No	No	C		X	1,9
	N.A.	N.A.	N.A.	None	7,506	N.A.	22.6	N.A.	2,266		4.3	None	None	3		d	527	C		No	No		X	1,9	19
	1,331	N.A.	N.A.	26	8,031	111,142	17.9	651	8,112	71,404	11.5	None	None	4		d	387	C		No	No	Y		9	
	N.A.	N.A.	N.A.	27	1,230	13,775	17.6	N.A.	484	4,383	5.6	None	N.A.	N.A.	N.A.	All	65	C		Yes	Yes	B		9	None
	N.A.	N.A.	N.A.	330	7,068	98,513	11.0	2,420	45,829	241,598	27.2		1	3		d	12	C		Yes	Yes	B, C		11,13	None
	N.A.	N.A.	N.A.		5,880	71,700	21.0	65	3,190	18,933	5.5		4	25	c	All	575	H		No	No		X	9	None
6	45			6	52											None		C		Yes	Yes		X		
	2,500	6,500	3.0		8,000	32,000	20.0	250	15,000	48,675	29.0		78	143		All	485	C		No	Yes		X	26	
74	26	475	2.0	45	450	3,900	17.0	10	399	1,150	5.0	None	None	None		d	5	C		Yes	Yes		X	1	35
26	100	N.A.	N.A.	74	350	6,200	21.0	4	931	2,030	22.0	None				None	26		X	Yes	Yes	B, C		27	28
	N.A.				2,326	16,453	21.0	310	7,365	53,323	70.8		290	893	1.1	All	35,361	C, O		No	No		X	38	
	500			None	N.A.			20	150	825	4.5	None	20	100	1.0	All	2,800	A		No	No		X	30	
	a		3.0	None	3,800		24.0	500	12,000		59.0	None	100		0.2	All	1,500		X	No	No		X	9	
					2,862	18,485	17.0	*819	12,590	61,690			*400	*1,200		All	40,486		X	No	No		X	9,4	
	1,366	*3,500	1.7		6,473	43,622	21.7	1,548	16,777	79,698	39.9		250	500	0.3	All	*100		X		Yes		X	9	None
	447	2,007	1.0	None	3,262	34,457	21.0	None	10,395	41,590	26.0	None	N.A.	N.A.	N.A.	d, n	390	Q			p		X	31	32
	1,477	6,605	3.0		4,064	38,524	17.4	2,115	34,112							All	206	A		Yes	Yes		X	5	
	a			27	3,149	20,529	24.9	20	642	4,287	5.2	None	7	22	c	None	None		X	Yes	Yes		X	5,30	
	N.A.			117	5,683	64,544	25.5	2,758	15,320	74,766	29.6		737	1,207	0.5	All	*70	A		b	Yes		X	5,9,24	None
	1,365				11,682		23.0	3,550	66,800		48.0		819		0.3	All	*50	A, R		No	Yes		X	5,9	
	a			None	8,251	N.A.	N.A.		1,674	N.A.		None	44		c	All	93		S		Yes		X	11	1
	N.A.				11,253	77,351	28.3	3,000	12,295	90,937	29.5		29	100	c	All	N.A.	X		No	No		X	21	
	N.A.	N.A.	N.A.	None	12,686	N.A.	N.A.	None	None	N.A.	N.A.	None	N.A.	N.A.		All	22		X	No	Yes		X	None	None
				220					406			6	4	30						Yes	Yes				

NOTES

- N. Builder program
- O. 200 amp entrance service minimum
- P. Sales promotion
- Q. By municipal ordinance—depending on number of customers
- R. Other—company's Reddy-Wiring program
- S. Trend favorable. Wiring allowance program requires 100 amp entrance. More and more local codes recommend 100 amp entrances
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- U. By joint decision of the utility, the Corp'n of Master Electricians and The Board of Electrical Examiners
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- W. Utility-contractor sales promotion
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- Z. Electric Service League
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3. Dryers
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13. Dehumidifiers
14. Adequate wiring
15. Conventional ranges
16. Commercial uses
17. Built-in range and oven
18. Electric housewares
19. All other
20. Housepower
21. Load building
22. Outdoor lighting and Medallion Homes
23. More on all
24. Medallion Homes
25. Traffic appliances
26. Electric heating is being promoted by means of a cash bonus to the owner of the heating system
27. Laundry: open house, Live Better Electrically program
28. Electric refrigerators
29. Lighting
30. Air conditioning
31. Radios
32. Evaporative coolers
33. Automatic washers
34. Combination washer-dryers
35. Washers
36. TV
37. Built-ins
38. Total electric home
39. Electric blankets

ELECTRIC LIGHT and POWER'S 31st

UTILITIES	Service Area in Square Miles	Domestic Electric Consumer on Resid. Rates, Dec. 31, 1959		Average Annual Kwh per Domestic Consumer		If Combined Gas Electric Utility, Number of Domestic Gas Consumers 12 31 59	Est. % of Domestic Electric Consumers Having Piped Gas Available 12 31 59	ELECTRIC RANGES				ELECTRIC WATER HEATERS				ELECTRIC DRYERS			
		Number	Increase Over 12 31 58	12/31/59	Increase Over 12 31 58			Total Sales in 1959		On Resid. Rates Dec. 31, 1959		Total Sales in 1959		On Resid. Rates Dec. 31, 1959		Total Sales in 1959		On Resid. Rates Dec. 31, 1959	
								By Utility	By Others	Number	Percent Acceptance	By Utility	By Others	Number	Percent Acceptance	By Utility	By Others	Number	Percent Acceptance
UTAH Provo City Corp.—Dept. of Utilities r—Utah Power & Light Co.	19 35,000	8,868 203,588	385 5,818	448 4,291	10 144	None None	93.0 80.0	None	469 14,776	7,715	87.0 61.0	None	76 4,513	1,418	16.0 28.0	None	345 7,245	1,596 26,000	26.0
VERMONT Central Vermont Public Service Corp.	7,500	58,707	2,200	3,203	196	2,000	N.A.	1,209	2,500			947	1,800			498	1,000		
VIRGINIA Appalachian Power Co. Virginia Electric & Power Co.	19,258 32,000	431,673 656,333	1,248 20,458	3,466 3,832	194 211	90,633	60.8		25,215 N.A.	276,046 277,629	64.1 42.3		14,716 8,500	111,065 204,251	25.8 31.1		14,798 N.A.	80,875 64,714	18.9
WASHINGTON City of Tacoma, Dept. of Public Utilities Puget Sound Power & Light Co. Seattle City Light Washington Water Power Co., The	85 3,200 127 26,000	55,993 196,828 207,872 127,655	747 9,559 1,553 e,21,045	9,544 8,609 8,660 8,740	589 769 597 526		16.0 10.0 40.0	None 10,000 6,501	8,500 170,000 186,553	50,683 170,000 186,553	90.5 85.0 87.0 95.0	None 3,600 9,500	46,571 166,000 155,916	83.2 83.0 94.0	None 1 5,469	4,800 7,500	29,956 84,000	53.4 42.0	
WEST VIRGINIA Monongahela Power Co. Wheeling Electric Co.	12,944 413	193,761 38,094	1,536 9	2,497 5,103	179 255		67.3 98.0	1,005 335	3,551 914	50,298 15,466	26.0 40.6	620 131	1,567 328	13,430 3,809	6.9 10.7	1,066 107	5,601 1,159	33,815 9,283	17.2 27.0
WISCONSIN Lake Superior District Power Co. Wisconsin Electric Power Co. Wisconsin Power & Light Co. Wisconsin Public Service Corp.	1,775 4,015 15,000 *10,000	23,139 449,850 169,606 144,941	129 11,474 2,706 2,659	4,462 4,064 4,253 3,587	226 259 302 217	300 31,872 64,088	0.1 93.6 24.0 53.0	460 401 561 1,098	600 12,100 *2,400 N.A.	17,246 180,500 49,111	37.0	380 249 622 697	165 4,200 1,514 *950	10,552 112,608 40,853 41,835	25.0 30.8 28.9	124 97 677 629	300 13,900 *2,700 N.A.	102,400 37,165	22.0 25.0
TOTALS FOR THE UNITED STATES		39,652,287	1,013,759	3,846				1,164,479	10,628,940			575,356	5,966,561			983,357	4,262,937		
CANADA British Columbia Electric Co., Ltd.	21,000	246,273	10,936	4,769	199	86,753	80.0		*8,080	138,000	56.0		*4,610	111,000	45.0		*5,540	25,000	10.0
British Columbia Electric Co., Ltd.	73	46,706	1,569	4,445	382	7,235	19.8	N.A.	2,034	25,696	55.0		559	5,535	11.9		721	3,419	7.0
City of Winnipeg Hydro Electric System	*25	71,719		7,869			N.A.	659				317				170			
w Manitoba Power Commission, The	*36,200	143,612	7,641	6,059	83		N.A.	404	N.A.	N.A.	N.A.	404	N.A.	42,796	42.3	208	N.A.	N.A.	N.A.
Quebec Hydro-Electric Commission	*120	470,900	17,902	4,086	326							4,726							
Shawinigan Water & Power Co., The	16,000	230,878	8,657	3,605	335		2.0		*9,465	74,822	32.2		*7,612	44,800	19.4		2,919	10,686	4.0
Southern Canada Power Co., Ltd.	6,000	90,959	3,930	4,380	339			1,163	2,631			1,366				505	700		
TOTALS FOR CANADA		1,301,047	50,635	5,030				24,436	238,518			19,594	204,131			10,763	39,105		

NOTE: Omissions in tabulated data indicate corresponding omissions in data furnished by respondent utility.
Appliance sales figures by other than utility are actual or estimated.

- * Estimated
- N.A. Not available
- a. Included with dryers
- b. Limited
- c. Negligible
- d. Resistance only
- e. Due to re-classification of rural and commercial accounts
- f. NEMA figure. Trend seems to be three times more freezers sold in '59 than '58. Two major distributors were checked to verify trend
- g. 1958 residential gas customers should have read 135,241 instead of 148,191
- h. By their sales companies
- j. On special water heating rates

- k. In rural non-natural gas territory only
- m. Lamp bulbs only as customer convenience
- n. As supplementary heating only
- o. As of October 1, 1957
- p. During special promotions only
- q. School change-out only
- r. Includes Telluride Power Co. and The Western Colorado Power Co.
- s. Free 100 amp service entrance to all new homes
- t. Water heaters only
- u. Supplied on rental basis
- v. Christmas only
- w. Six months of sales activity reported—appliance merchandising discontinued in mid-year
- z. Decrease in number of consumers

- A. By municipal ordinance
- B. Handled by bank
- C. Handled by utility or utility ruling
- D. County ordinance
- E. During special promotions only
- F. 1959 National Electric Code
- G. State legislation
- H. Not required; but recommended
- I. North Dakota
- J. Practically 100% of new installations are 100 amp or larger. Promoted by utility and contractors
- K. Utility company with cooperation of fire underwriters
- L. Franklin County regulation
- M. Agreement by utility and inspection authorities

FOOT

ANNUAL MAJOR APPLIANCE SURVEY

ELECTRIC WASHER-DRYERS				ELEC. HOME FREEZERS				ELEC. RESID. AIR COND.				ELEC. HEAT-PUMP SYSTEMS				ELECTRIC SPACE-HEATING		100-Amp Space-(Min.) Service Entrance Required?		Utility's 1960 Electric Merchandising Policy		Have "Wire-On-Time" Plan?		Appliance or Application Receiving Markedly More or Less Emphasis in 1960	
Total Sales in 1959		On Resid. Rates Dec. 31, 1959		Total Sales in 1959		On Resid. Rates Dec. 31, 1959		Total Sales in 1959		On Resid. Rates in 1959		Total Sales in 1959		On Resid. Rates Dec. 31, 1959											
By Utility	By Others	Number	Percent Acceptance	By Utility	By Others	Number	Percent Acceptance	No. of Central Systems	Compressor-Type Room Units	Number	Percent Acceptance	By Utility	By Others	Number	Percent Acceptance	Types Being Actively Promoted	No. of Consumers Now Being Served	Yes	No	Sales to Public	Sales to Employees	Yes	No	More	Less
one	80 1,348	200	2.3 3.0	None	260 6,971	1,684	19.0 23.0	6 146	59 1,017	403	4.5 2.0	None	3			All All	2 550	A, T A		No No	No No		X X	9 7,9	19
100	200			150	500			N.A.	N.A.							None	14		s	Yes	Yes		X	34	
N.A.	N.A. N.A.	N.A. N.A.	N.A. N.A.	N.A.	N.A. N.A.	N.A. 116,171	N.A. 17.7	N.A.	N.A. N.A.	N.A. N.A.	N.A. N.A.		118	332 278	c c	All All	3,565 2,585	C A, C		No No	No No		X X	12 12	
	800 N.A.	7,169 N.A.	12.8 N.A.		2,400 N.A.	63,000	38.0 32.0	N.A.	N.A.	N.A.	N.A.	N.A.	15 N.A.	34 N.A.	N.A.	All No No All	5,500 13,175 16,000 12,000	A G A A		No No Yes Yes	Yes Yes Yes Yes		X X X C	1 9 16 30	11
one	*450 *125	N.A.	*1.0	245 None	*1,715 *500	33,660	17.3 18.0	N.A. 190	560 2,280	*2,660	1.4 6.5	None	2 6	17 13		All All	578 457	C	X	Yes 1,2	Yes Yes	C C		10,29 9	
10 5 115 46	100 N.A. 200 N.A.		3.0	50 69 349 266	200 *10,440 1,980 N.A.	94,900	21.1 23.0	N.A. 10 None	3,969 2,430 145	29,900	6.6 4.0	None None		2		None d d No	3 200 50 15	X A A A, C		Yes Yes Yes Yes	Yes Yes Yes Yes	C C X	X C X	2 9 4,9,10 1,2	25
126,090		379,314		631,745		4,231,910		73,638		975,056		3,271,577		19,734		40,463									
	*440	6,000	2.0		*2,835	23,000	9.0	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	None	3,370	C, Z		No	No		X	11,29	
one	*25	*200	c	None	639	5,767	12.4	N.A.	N.A.		c	None	N.A.		None	No		X	No	No		X	11,30	2	
7				18												None	5		X	Yes	Yes		X	None	
2	N.A.	N.A.	N.A.	240	N.A.	N.A.	N.A.	None	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	No	3	A, Z		No	No		X	10	
																None	2,600	U		No	No		X		
	3,487	16,531	7.1		1,647	11,671	5.0									None	675		X	No	No	C		1,14	
140	100			153	316			285								None	400	V		Yes	Yes	C		1,27	
4,201		22,731		5,848		40,438		285								7,053									

NOTES

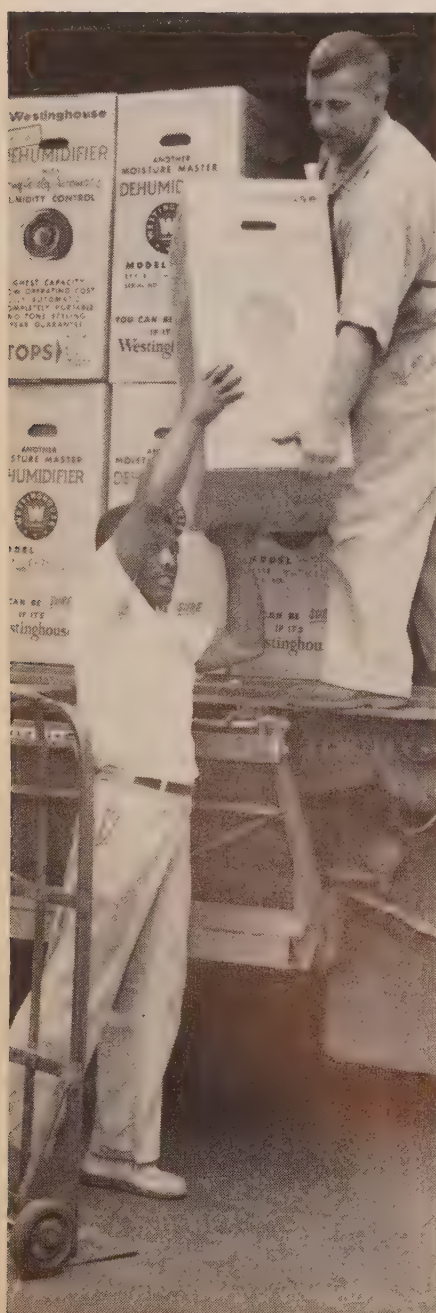
- N. Builder program
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- 2. Ranges
- 3. Dryers
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- 33. Automatic washers
- 34. Combination washer-dryers
- 35. Washers
- 36. TV
- 37. Built-ins
- 38. Total electric home
- 39. Electric blankets

BUILDING LOAD WITH DEHUMIDIFIERS

Unique campaign oversells quota more than 1000 per cent



By LAURENCE A. DUNN

Vice president
The United Illuminating Co.

LAST SUMMER, a three-months campaign by The United Illuminating Co. sold 3102 dehumidifiers, although the quota planned was only 300. A total of 2002 dehumidifiers of the make United Illuminating handled and 1100 of other brands were sold.

When dehumidifiers were first considered by UI for load building, nobody seemed to know what they could do. So several members of the Sales Department tried one in their homes—and were really amazed with the results. One unit removed up to 34 pints of water a day from the air in one room. The dehumidifier itself sold each of us on the job it could do. At the same time, we realized that we had a whale of a job before us, if we were to sell the public. We had first to educate them, as we ourselves had to be educated, on what a dehumidifier could do.

What Brand?

What brand should we use? We selected a manufacturer who was interested in a dehumidifier promo-

tion and whose product carried a five-year unconditional guarantee!

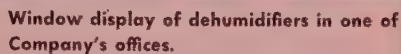
We decided that a *free trial* was clearly indicated for this appliance. We also knew that our ads would have to be to the point. They would have to be specific. We even hit upon the idea of having these *water eaters* placed in our windows filling wading pools to get across our very special story.

Weather Was Favorable

Then, the weather broke for us, too. One of our salesmen got the idea that by relating a temperature curve to a humidity curve he could almost predict when the sales would take an upward trend. This can well help us as we plan future campaigns. Whatever the reason, the results were fantastic... soon after our promotion started we were frantically calling the distributor for more stock... one hundred in the morning... another hundred in the afternoon. We just couldn't keep up with the demand!

In our campaign proposal we planned to sell 300 dehumidifiers. I talked with the distributor about placing an order for 300. His reply, "Why don't you buy 100 for Bridgeport, 100 for New Haven and we'll hold a hundred for you in reserve—just in case a miracle happens."

Receiving a shipment of dehumidifiers directly from the manufacturer's plant. Utility handled all deliveries to dealers and customers at no charge.



So that's how we started! The campaign period was June 1 to September 1. Soon we knew we had a bear by the tail. Neither we nor the supplier could keep up with the demand. During the last week of July we sold 336—more than our original quota. As a side result of this program, dealers sold dehumidifiers which had been in their stock for two or three years. One dealer who sold two dehumidifiers in '58, sold 63 in '59.

Variety of Uses

One customer bought 11 to protect her art work and tapestries. Builders bought them to dry up new houses. One distribution department bought them for substations. They were bought for pump houses and wells.

A list of industries which bought dehumidifiers looks like a volume of "Who's Who." It includes printers, paper box manufacturers, banks, universities and photographers. The list is endless.

Results

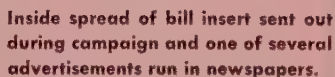
The final results were beyond our fondest hopes! But, I guess you would like to get in on the secret. How did we do it?

The thing that made the promotion click, aside from the weather, was the 15-day *free trial* in the customer's home. After the customer emptied the first couple of pails of water, he was sold, and he sold his neighbor. The regular price of \$119.95 was cut to a special campaign price of \$89.95 with free delivery.

Dealers who had never gone into any promotion with UI came begging for dehumidifiers. Well, \$20 profit for the dealer without any investment or delivery problems, looked pretty good.

We consigned one dehumidifier to the dealer for display. He took orders, sent the orders to us. We delivered by a parcel delivery service, and after the 15-day trial was up, we billed the dealer. He collected from the customer, kept \$20 for himself, and sent us the balance.

We backed the promotion with newspaper ads, and radio, and our bill insert window banners, window displays and point-of-sale displays.



WESTINGHOUSE
Dries Air In Any
8 Feet High And W

ON!
Save \$3!

This automatic
moisture out of 16
in where needed.

Valuable for
from rust and
houses and b
goods, hool
humidific

SEE
that this
investm
ments, ..
metically sealed

Reddy Kilowatt Says:
The Westinghouse Dehumidifier
Sops Up Moisture From The Air
IN YOUR HOME, SHOP, BUSINESS
in the Westinghouse


Plug in the Westinghouse dehumidifier wherever you wish, without special wiring, for sure protection against rust, mildew, mold and corrosion. It will remove up to 34 pints of water a day from the air in a room as large as 8 feet high and measuring 40 by 50 feet.

The Westinghouse dehumidifier watches for dampness, and it acts before damage—even in a humid basement or business storage room.

15-DAY FREE TRIAL to show you how wonderful this dehumidifier really is. Your dealer will arrange budget terms, and there is a 5-year guarantee on the hermetically sealed unit.

ONLY \$89⁹⁵
Save \$30 . . . List Price \$119.95



 THE UNITED PRESS COM.
60TH ANNIVERSARY



MODERNIZING COLLEGE DISTRIBUTION SYSTEM PAYS SURPRISING DIVIDENDS

Replacing inadequate system with a modern primary service system provides ample capacity for future needs and power cost savings that will pay for system in five years.

THROUGH a sweeping, comprehensive modernization of its outdated electrical distribution system, which doubles power handling capacity, Pennsylvania Military College, Chester, Pennsylvania, now realizes power cost savings of \$5000 annually. Other benefits are greater safety to students and custodial personnel, virtual elimination of maintenance, and ample capacity to provide for future expansion of college facilities.

Over the years, PMC had been faced with a gradual compounding of inadequacies in its electrical system. For most of the time, however, the situation didn't seem bad enough to justify any extensive

modernization, especially when considering a tight college budget. And, at the time, the college did not fully realize the savings and other benefits that would result from modernization. Consequently, load after load was added without any corresponding increase in capacity to handle them.

The breaking point was just about reached in 1958 when, in some instances, load was as much as 40 percent over rated capacity. During the summer, for example, the 75-kva transformer that supplied the main administration building was forced to handle 105 kw when air conditioning units were operating. Cables frequently burned, fuses blew with regularity, wires overheated and insulation melted.

Study Problem

First explorations to solve the problem were made in the summer

of 1958 when Philadelphia Electric Company was asked to survey the overall system and costs of service. The study compared the power costs of the system then in existence with those possible with a new primary service system, the utility suggesting that primary service should be considered in planning any modernization for the mutual benefit of both user and power company.

As a result of the study, the utility estimated that complete conversion to primary service would make possible immediate annual savings of \$4500, savings of \$5000 when the second of three new dormitories was added, and savings of \$5600 when the third dormitory received service.

After some discussion of the feasibility of installing its own distribution system, the college sought and obtained approval of the trustees,

money was allocated, and the modernization program was officially started.

The New System

In place of the two types of secondary service formerly supplied, single-phase three-wire and two-phase five-wire, primary power now enters underground at the stadium field house feeding unit substation A, then loops off the top to a fused interrupter switch. From there, power goes via 850 feet of underground conduit to unit-substation B located in the basement of Howell Hall, a new dormitory.

The two substations are packaged units, 225 kva each. Availability of these in voltages and capacities called for in the planning of the system was a major factor in enabling the college to receive primary power and in facilitating the installation of the complete system by the college itself.

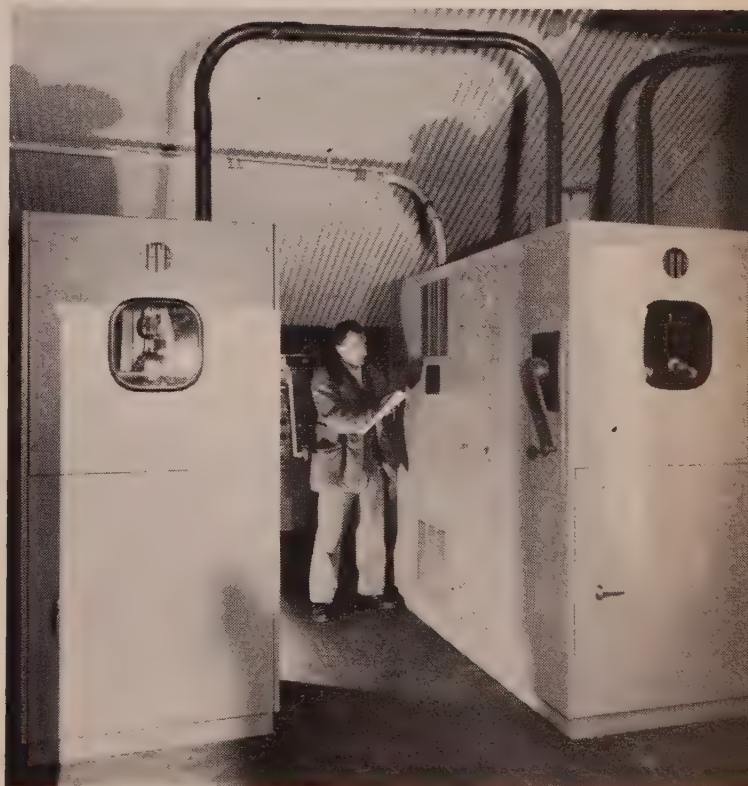
Substation A feeds the administration building, armory, library and stadium, and will later supply a series of buildings along the street that bisects the campus.

Station B supplies Howell Hall and Turrell Hall, a newly completed dormitory, and will feed a third dormitory now under construction. Capacity is also available for still another dormitory and

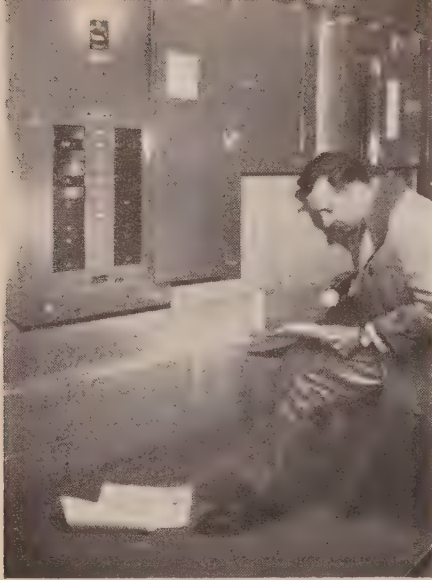
single metering point in stadium provides recording of total power use and demand for entire college, replacing 24 separate and widely scattered meters employed in previous system.



View from Howell Hall looking toward Old Main administration building of the Pennsylvania Military College, founded in 1821. At left is the new dormitory Turrell Hall. The two dormitories receive power via underground ducts from the stadium power room behind Old Main.



The stadium power room is the entrance point for 4160 primary service which goes first to metering compartment, then to substation A, an I-T-E Transfo-Unit rated 225 kva; power loops off top to fused interrupter switch (left) then goes underground to substation B in Howell Hall.



Administration building basement houses new distribution panels which are fed by a single line from substation A, replacing three separate lines of former system. Distribution here is split into two supplies, one for lighting and the other for dishwasher, steam generator and air conditioners. Panels are produced by I-T-E's Bulldog Electric Products Division.

a science and engineering building planned for the future.

All power enters through a single metering cabinet located in the stadium power room. This provides complete control and recording of power to all buildings at a single point. Primary service is 4160-volt, three-phase, four-wire.

The entire secondary system was re-wired, re-balanced and new main distribution panels were added for all buildings. The 24 meters located at scattered points throughout the campus were eliminated entirely. Lighting circuit breaker panels replaced 427 separate fuses in widely scattered fuse boxes used in the previous system.

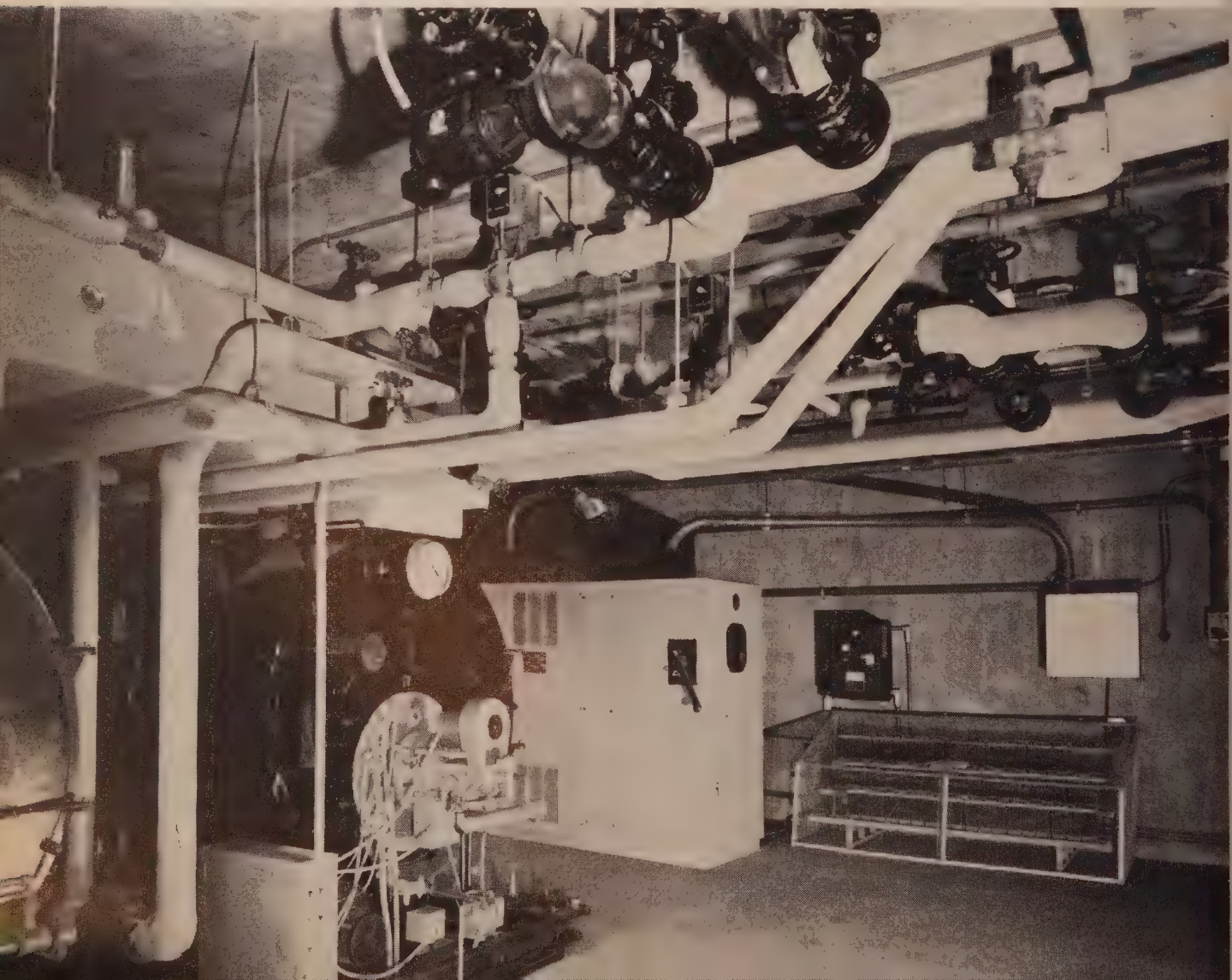
Three feeders that previously went into Old Main, one to the dome of the building and two to the basement, were replaced by a single line to new basement distribution panels from which one line

provides service for lighting and another supplies power for dishwasher, steam generator and air conditioners. Provision was also made during the installation for emergency power from a generator to provide for temporary heating, lighting and cooking.

Final stage of the changeover program will consist of tying in the remainder of the outlying buildings to the new system. This will add the final 20 percent of total power to the new distribution system and completion is scheduled this year.

The entire system was in operation 53 weeks from the time initial discussions were held. Construction began in June, after commencement exercises, and both substations went on the line in October with only a four-hour outage during cutover to the new system.

Substation B in Howell Hall, another packaged unit, is neat in appearance, requiring a minimum of space; the low, 80-C rise rating of the transformer in the unit was important factor permitting its location in dormitory. Battery set at right supplies power for emergency lighting.



HEATING WITH LIGHT

Thermal properties of light sources in integrated lighting and air conditioning systems can be utilized to improve overall lighting design and to gain economies in installation and operation. New Georgia Power Co. office building is good typical example.

By JOE B. BROWDER,*
Sales Manager,
Georgia Power Company

THE FAR-REACHING and full impact of the Illuminating Engineering Society's newly recommended foot-candle levels based on research by Dr. H. R. Blackwell & Associates, has not yet been realized or fully felt by the entire electric industry. The IES itself is still very much in the process of digesting and making full use of this

information. Everyone will agree that there is a great deal more to a lighting job than mere foot-candles and that the higher the level of foot-candles, the more critical the entire surround becomes.

Nothing New

My subject, however, is not concerned with the quality of light but

rather one of heating with light. This is nothing new. There are many commercial establishments, particularly in the South, that have as their sole source of heat an incandescent lighting system such as is frequently found in small jewelry stores. The Georgia Power Company had a number of District and Local office stores in the Southern part of its service area that were heated and lighted entirely with 1500 total indirect incandescent luminaires over twenty years ago. So what's new about "heating with light"? The difference lies in the wider spread application and the greater range of temperatures, and consequently, areas where this can now be done successfully.

The new foot-candle levels are such that even with "cool efficient fluorescent" the heat generated is sufficient to heat a building with a design temperature of $+10^{\circ}\text{F}$ with the lighting system being the sole source of heat. What are the implications of this—what effect will this have on lighting equipment manufacturers, on air conditioning manufacturers, on electric utilities and on the customers?

New Office Building

Here is a good example. A big 22-story office building, presently under construction, is utilizing the new foot-candle levels throughout. Fortunately, this building was designed twice—once before the new foot-candle levels were published and again after the new levels were published. This gives an

New 22-story Georgia Power Co. office building now under construction, employs dual duct system with mixing boxes for utilizing heat from the lighting system to improve heating efficiency and cut air conditioning requirements.



*Joe B. Browder is also President of the Illuminating Engineering Society.

excellent comparison of the effect of the new levels on the entire building. This is a typical office building in design and general layout. It is 22 stories above the street and two basements below street level. Heat gains and heat losses are "normal" or average. There are varied kinds of occupancies such as executive suites, clerical offices, business machinery areas, corridors, toilets and all other typical things found in large office buildings.

Each floor contains 11,540 sq ft. There is an attached multiple deck parking garage capable of parking 270 automobiles. This building will cost \$7,400,000 exclusive of the \$1,000,000 real estate cost. It is the new General Office Building of the Georgia Power Company being built in Atlanta.

Electrical Equipment

Not too long ago 3 watts per square foot and 10% electrical cost was really a "big deal." Our new building has 23 w per sq ft. The electrical equipment in this building and its cost is as follows:

Wiring and lighting—\$1,045,000 or 14.56%.

1050 tons of electric air conditioning—\$1,017,000 or 14.17%.

Six electronic elevators—\$631,000 or 8.79%.

This totals \$2,693,000, or 37.5% of the total cost of the building. These figures exclude the exterior lighting which has not been finalized, but is estimated to cost over \$100,000.

Too Many Btu's

As soon as we decided to adopt the new lighting levels throughout the building, it became immediately apparent that the Btu's generated by the lighting could not be dealt with by conventional methods.

The design temperature in Atlanta for heating systems is +10F. The lighting system, even using fluorescent exclusively, produced slightly more Btu's than +10F design required. It was also found that we would need both heating and cooling at the same time on the same floors on cold days. The perimeter or outside offices would require heat and the interior offices cooling even on a +10F day.

A dual duct or "hot and cold" deck system was decided upon. This system involves the use of mixing boxes that are fed by hot air ducts and cold air ducts which are controlled by zone thermostats. The mixing box is the air delivery source for the particular area or zone being heated or cooled and delivers whatever temperature air called for by its particular thermostat between the range of 53 to 90F.

Air Conditioning Reduced

The heat from the recessed troffers which constitutes the lighting system is collected from the plenum and introduced into the hot air duct system. Thus it is carried from the interior offices that are being cooled over to the exterior offices that are being heated. This system not only utilizes the heat from the

lighting fixtures to heat the building in winter but the real bonus is that come summer, a means of collecting and exhausting this heat to the outside is provided. This greatly reduces the amount of air conditioning that would otherwise be needed to cool the building.

Heating At Night

This system presented the problem of heating at night when the lights would not ordinarily be in use. A very tempting and simple solution, of course, was to put the lighting on each floor on night setback thermostats. This we came very near doing. It was decided, however, that the wear and tear of the frequent starting of the lamps and the doubtful effect on the public of seeing the Georgia Power Building blinking by entire floors on cold nights would be too much.

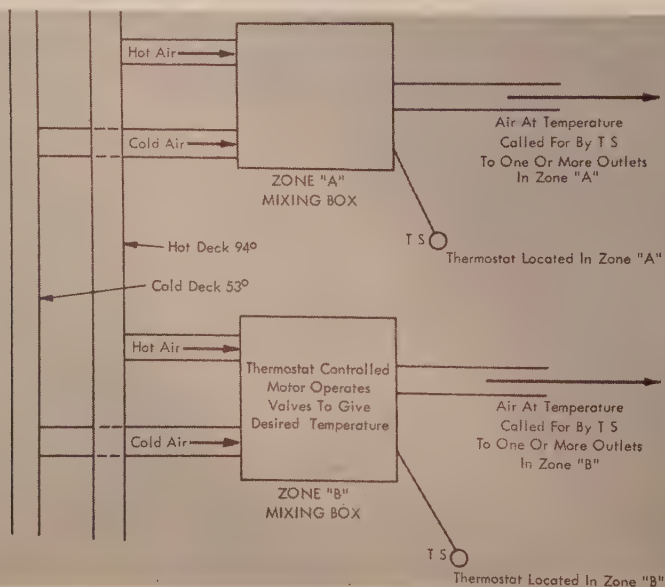
This problem was solved by installing resistance heaters under the windows of the outside offices, and in the hot air ducts. This took 87 kw per floor or a total of 1906 kw which only operates at night or on very cold days.

General Conclusions

The study on this building affords us the opportunity to evolve some general conclusions that perhaps will be interesting and useful. First, it was found that when the new foot-candle levels are applied to a typical structure such as this one that the *average* level of light is 100 ft-c. The specific applications of course vary from 30 to 200 but the point is they *average* 100 ft-c. The wattage in fluorescent required to produce this level, and stay within the brightness ranges that are acceptable, in this case was 8 w per sq ft. The lighting system provides 27 Btu per sq ft which is available for heating. Thirty-six Btu per sq ft was found to be needed for air conditioning. If this building is accepted as a typical office building then for "thumb rule" use, these figures should be useful in the field.

Some "before and after" comparisons may be informative. The preliminary design of the building indicated a need for 850 tons of air conditioning which was to have been provided by a heat pump. The lighting levels at that time were designed to provide an *average* level of 40 ft-c. This, by the way,

Detail of mixing box to obtain desired temperature.



was well above the then published I.E.S. levels.

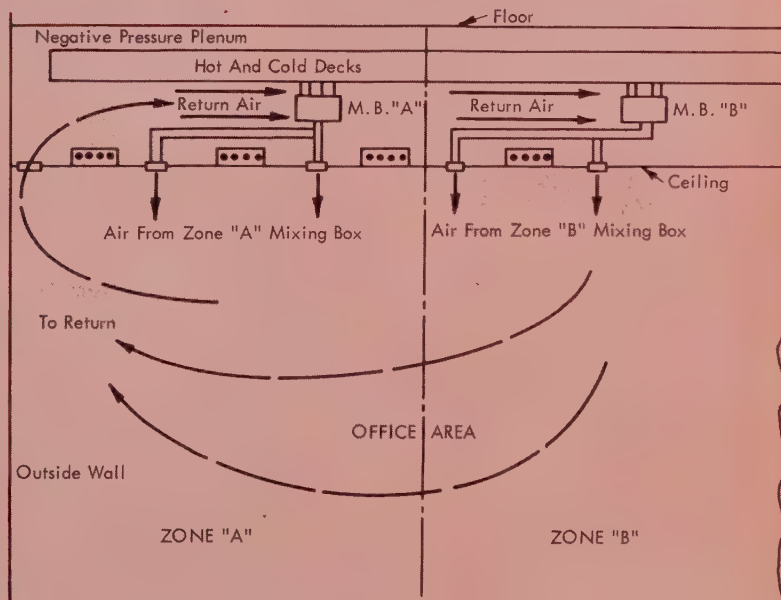
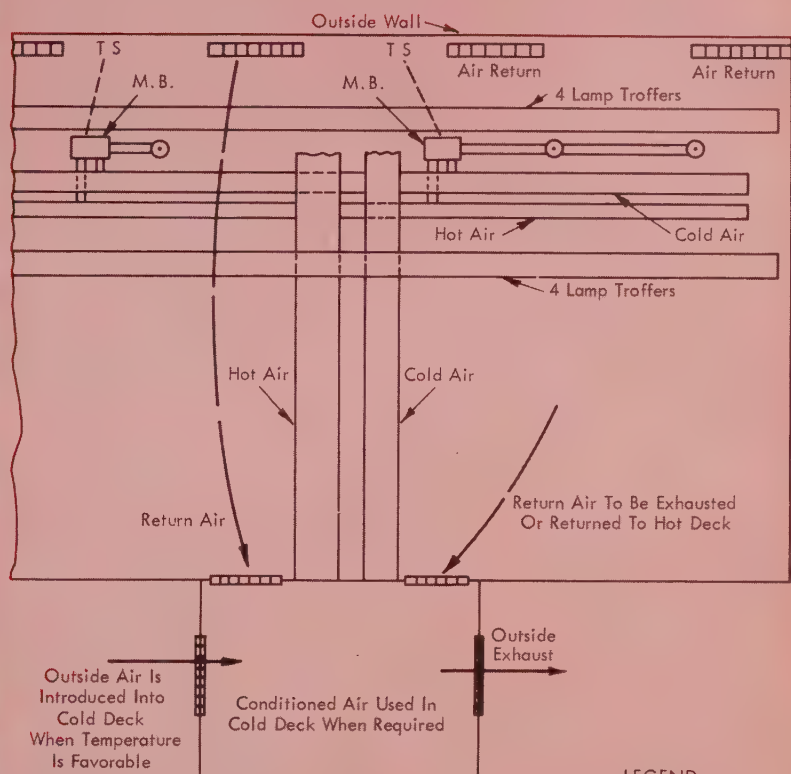
Air Conditioning Increased

The decision to go to the new levels which produced an average of 100 ft-c, made necessary an increase in air conditioning tonnage from 850 to 1050 tons, or 24%. 528 tons of the 1050 tons were required for the lighting alone, the balance being for the people, machines, windows, etc. This change added over \$500,000 to the cost of the air conditioning, wiring and luminaires that were previously planned. This increase in cost per square foot comes to \$1.40. The total electrical and air conditioning costs per square foot is \$7.50.


It made unnecessary the installation of a heat pump. It made necessary a new concept in collecting and using lighting heat and collecting and expelling lighting heat. It made necessary new concepts in luminaires to provide 200 ft-c without exceeding brightness limitations.

GEORGIA POWER COMPANY'S NEW BUILDING STATISTICS

1. Height—22 floors above street level—350,933 sq ft.
2. Two basements—48,973 sq ft.
3. 270 car parking garage—89,659 sq ft.
4. 11,540 sq ft per floor for typical floor.
5. Service voltage—266/460.
6. Service entrance—16 parallel sets of 500,000 CM.
7. Main breakers—2—4000 amp—Parallel.
8. Connected load—8000 kw.
9. Estimated demand—4305 kw.
10. 1000 tons of air conditioning (2 @ 500 tons each).
11. 50-ton heat pump for auditorium, telephone office and load dispatchers' office (24-hour operation).
12. 90 kw of lighting per floor.
13. 87 kw of resistance heating per floor.
14. Total electric load—23 w per sq ft.
15. Total building cost (exclusive of land) \$7,400,000.
16. Electrical contract \$1,045,000.
17. Elevator contract (6) \$631,000.
18. Air conditioning and plumbing \$1,017,000.
19. Under window heaters—500 w each.



Hot and cold duct arrangement with built-in lighting system.



HOW CONNECTICUT UTILITY SELLS PRIVATE STREET LIGHTING

Connecticut Light and Power Company has found that private street lighting is a good load builder and it also plays an important part in promoting better business, which benefits both the utility and its customers.

SINCE 1954, the Connecticut Light and Power Company, through annual meetings with officials of over 100 Connecticut cities and towns which it serves, has been actively promoting installation of modern municipal street lighting, "the Mighty Mite of utility sales" as Vice President A. M. Wade called it. As a result the benefits to be realized by a community from good street lighting are well-known to municipal officials but these same benefits can work to the advantage of private business as well. Private street lighting for the Company's commercial and industrial customers helps business by providing attraction to passers-by, safety and convenience for employees and customers, and protection against vandalism during the hours of darkness.

Utility Service

Convinced of the value of private street lighting, more and more Connecticut businesses are taking advantage of this service provided by their utility. Equipment is installed, owned and maintained by the Company, thus relieving the customer of any of the problems associated with installation and maintenance. Annual charges listed in the regular street lighting rate apply and are billed to the customer in 12 equal monthly installments.

Restaurants, automobile dealers and garages, gas stations, trailer parks, roadside stands, drive-in

theatres, industrial plants, lumber yards, clubs, motels and farms are among the many types of customers that have installed private street lighting recently. In most cases it has been possible to do the job with one or two luminaires mounted on the customer's side of existing distribution poles. In those cases where additional poles and/or extensions of distribution facilities are required for street lighting the customer is required to make a refundable contribution covering the cost of their installation. If these additions become a part of the Company's distribution system for supply of other customers within five years, the customer's contribution is refunded. If, for any reason, poles or luminaires are relocated at the customer's request the cost of such work is borne by him.

Regular Rate Applies

As mentioned previously, CL&P's regular PUC-approved street lighting rate applies to all private as well as municipal street lighting. Thus the need for negotiating separate contracts with each customer is eliminated, since the term of contract—"two years and thereafter until cancelled by one year's written notice"—is specified in the rate itself. After locations and type of light have been decided the customer places his order by means of a Company form letter indicating his understanding of the rate and term of contract.

By **WILLIAM R. HARWOOD**
Street Lighting Supervisor
The Connecticut Light and Power
Company

CL&P's street lighting representatives in its various districts are instructed to deal only with those customers whose business locations can be expected to be reasonably permanent and to date only a few installations have been removed due to changes in type of business or ownership. In such cases the Company may protect its investment by billing the customer for the balance of the contract period or, at its discretion, may waive the

charges where extenuating circumstances exist.

Lamp Replacements

Lamp replacements are made in conjunction with the Company's standard group replacement schedule for the various lamp types. No special provisions have been made for replacement of individual burned out lamps but they would normally be replaced during regular working hours within 24 hours after notification.

By the end of 1959 there were about 1900 private street lights of all sizes in the area served by Connecticut Light and Power providing annual revenue of about

\$110,000. About half of this number are small incandescent luminaires, many of which have been provided over the years by neighborhood and beach associations for lighting their streets and ways. Of late, the main impetus to the sale of private street lighting has come from the desire of business to provide for the safety and convenience of their customers and employees and new installations are mostly of the 21,000 lumen class, both mercury and fluorescent.

Employee Bonus Discontinued

The extra incentive of a bonus paid to Company employees was instituted in 1958. Under this plan, employees were paid \$6 each for leads resulting in the sale of 20,000 lumen street lighting service to private customers and this plan accounted for over 150 sales during the year. Though successful it was felt that such incentives might lose their effectiveness if offered over



As the representatives checked in, their results were tabulated. 77 prospects were contacted, with a potential of 86 lights sold, a total of 106%.



C. W. McCormick, commercial manager, outlines sales strategy for the CL&P Floodlighting Jamboree, held in Meriden last fall.



Commercial representatives, George French, left, and Al Smith, right, talk over the benefits of private street lighting with a customer. He was listed as a definite prospect.

In the follow-up call early the next week, George French reviews the advantages of private street lighting, and the customer signs up for two mercury units.

too long a period so the plan was withdrawn at the end of 1958.

However, private street lighting sells itself with nightly demonstrations of the service it renders. Even without any bonus offer and with other required activities limiting the time spent on street lighting one CL&P division reports 51 new private street lights installed in the first seven months of 1959 producing annual revenue of over \$4,000.

Floodlighting Jamboree

Blitzkrieg is a term usually reserved to describe a technique of war. But the principal was used successfully late last year by the Company's Commercial Department to sell floodlighting using

Commercial representatives wore this identification badge carrying the same theme as the post card mailed earlier.

This jumbo post card was mailed five days before the sales Blitzkrieg to the 96 prospects to be contacted in the one-day Floodlighting Jamboree.

**28¢
A DAY**

FLOODLIGHTING JAMBOREE MAN

**FOR LESS THAN
28¢ A DAY
YOU CAN . . .**

- INCREASE YOUR BUSINESS
- GET DUSK TO DAWN PROTECTION against vandalism and theft
- GIVE GREATER CUSTOMER SAFETY
- GET FASTER IDENTIFICATION
- MAKE THE PREMISES MORE ATTRACTIVE

Yes, floodlighting can do all of these important jobs for you. And, these few cents a day are the only cost to you to floodlight your building and the surrounding area. There's no installation charge and CL&P takes care of the entire maintenance without any additional cost.

Watch For The FLOODLIGHTING JAMBOREE MAN

He'll be in to see you on Thursday, October 29, to give you the full details on this floodlighting program.



streetlighting equipment. In one afternoon, 17 commercial representatives from all five of CL&P's divisions converged on 96 prospects in the Meriden district.

Prior to the meeting, which was called the "Floodlighting Jamboree," customers' locations were scouted to make sure those prospects called on had distribution poles adjacent to their property. Then, five days before the sales blitzkrieg, jumbo post cards were mailed to all the prospects telling them the advantages and low cost of floodlighting. It also informed them that a "Floodlighting Jamboree" man would call in person on a certain day.

On their calls, the representatives

were given a badge to wear, identifying them as Floodlighting Jamboree Men. The badges carried through the theme of the post card — "Less Than 28¢ A Day." They carried floodlighting material to leave at each call and they were armed with testimonials, including photos of the installations, from businessmen in the Meriden area who are already using back-of-the-pole lighting.

The primary purpose of the representatives on the day of the Jamboree was to arouse and cement interest. Those customers who said they were definitely interested in private streetlighting were to be called on by the Meriden representatives as soon as possible after

This is what Larry Arancio, owner of Theriaults Shopping Plaza, has to say about his private street light: "I like it. When I retire at night, I feel at ease because I know the silent watchman is on the job. I would recommend private street lights to anybody."



Michael Cappucetti, owner of Cappy's Supermarket on Route 6A in Southington, has this to say about private street lights: "Before the private street lights were installed, my store was broken into five times. Since the street lights were put in, the crimes have ceased. They also afford good lighting for my customers in the parking area. They have attracted additional shoppers as night-time sales have increased. The street lights are definitely a bargain. For a few pennies a day, they really do a job!"



the blitzkrieg to close the sales.

Results

Results of this activity were most encouraging. Of the 96 prospects, 19 could not be contacted; 16 were not interested. The remaining 61 either could have been signed up or were interested enough to request a call back by the local representatives and these 61 customers would require a total of 86 lights, both mercury and fluorescent. This represents annual revenue of about \$7,400 or, if we conservatively anticipated 50 sales, annual revenue of over \$4,000. It has been our experience that, as more lights go up, more are requested by other customers.

Since the Jamboree, our five Eastern Division men have spent a day each in Willimantic, Danielson and Essex. Without any advance mail or screening of prospects they sold 37 units for an increase of over \$3,200 in revenue.

Everyone Is Pleased

CL&P has discovered that the sales blitzkrieg seems to please everyone. The commercial representatives like working in new surroundings. Meeting with other representatives provides a change of pace that spreads a contagious enthusiasm and good natured competition among them. The Company likes the volume of calls made and the resulting sales. Equally im-

portant, judging from their reactions, the customers like the idea of the pre-call post card. Representatives received a hearing immediately and got full attention. Many customers on seeing the representative's identification badge remarked that they had been waiting for the visit.

As time permits, we hope to use this sales method in our other districts as our customers seem to be ready and waiting for this type of service.

Revenue-wise it's not much in relation to total sales but private street lighting plays an important part in promoting better business which, in turn, benefits both the utility and its customers.

"TIME TO CHANGE" CAMPAIGN

REPLACES 1034 FLAME-TYPE APPLIANCES



Outstanding results of three-month campaign are accomplished in spite of recent arrival of natural gas when interest and propaganda was at its height.

By R. N. Robertson
Director of Residential Development
Florida Power Corporation

IT WAS TIME TO CHANGE, and change they did! During Florida Power Corporation's big electric range, water heater and air conditioning campaign held last year, 1034 flame-type appliances were replaced with new electric ranges and water heaters. In addition, 11,443 tons of residential electric air conditioning were sold to top campaign quotas and set new sales records.

Conversion Market

While the "Time To Change" campaign was beamed primarily at the conversion market, the impetus it generated carried through to the new home field, and played a major part in making 1959 the best sales year in Florida Power Corporation's history. During the year, the company's dealers sold 23,328 electric ranges, 24,450 electric water heaters and 18,973 tons of residential electric air conditioning.

Scheduled to coincide with the arrival of natural gas in the company's 31-county service area, the aggressive "Time To Change" campaign took the initiative and put the sales spotlight on electrical living. Heavy advertising and promotional aids helped dealers tell and sell the advantages of changing to electric appliances—and as a special inducement to customers who were contemplating electric cooking and water heating, the company offered a \$25 wiring allowance toward the

installation cost of each electric range and each electric water heater replacing a flame-type appliance.

Air Conditioning Included

With the campaign running through June, July and August, the company also took advantage of the natural selling season for air conditioning and included it in the promotion. Customers were urged

to change to summer coolness and year 'round comfort... electrically!

The enthusiasm that greeted the campaign was evidenced by the great number of dealer tie-in promotions that were conducted throughout the company's service area. In addition, the campaign theme later used by Tampa Electric Company, Florida Power and Light Company, Orlando Utilities Commission and Ocala Utilities Divi-

All Florida Power Corp. customers in the Lake Wales area who were not using electric ranges, water heaters or air conditioners, received a special letter from FPC Home Service Adviser Sally Dillard and Residential Sales Representative R. E. DeLegal during the company's Time To Change campaign. The letters were most effective in helping dealers such as Tom Crosby, right, boost sales during the promotion.



"Time To Change" advertisements were run in 50 daily and weekly newspapers during the campaign period.

sion. "Time To Change" soon became a statewide promotion.

As Florida Power Corporation is not a merchandising utility, the wholehearted support of dealers and plumbers was necessary for the success of the campaign. To make sure that all of these sales people were familiar with the promotion, the campaign details were first introduced in a special edition of the company's dealer publication. Follow-up meetings were then held throughout the company system to further explain the special installation allowances and sales bonuses being offered.

Sales Incentives

An ambitious quota of 800 electric range and water heater replacement sales was set for the campaign, and as an incentive to dealers, plumbers and their salesmen, the company offered a \$5 bonus for such sale. A bonus of one dollar was paid for each ton of residential electric air conditioning sold during the campaign, and the air conditioning quota was set at 10,000 tons.

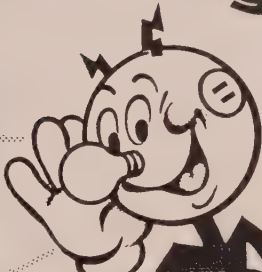
A heavy advertising program was scheduled by Florida Power Corporation to back the promotion. "Time To Change" advertisements were run in 50 daily and weekly newspapers during the campaign period, and 60 spot announcements on two television channels were used to draw attention to the special installation allowances being offered.

Special window and office displays in all of the company's offices gave impact to the promotion and brought interested inquiries from customers for campaign details.

Tie-In Advertising

Dealers and plumbers were urged to tie in their own advertising and promotional plans with the campaign, and they did so in surprising numbers. Drop-in mats of the campaign emblem were made available for dealer use, and tie-in newspaper advertising soon appeared throughout the territory. Colorful bumper stickers and window banners were also prepared and distributed for

It's Time to Change...
**GO
ELECTRIC
NOW!**



Yes, NOW's the time to change
your old stove and water heater
for the modern electric appli-
ances you've always wanted.

See your dealer or plumber
and take advantage of the big
installation savings in effect for
a limited time.

Change to
**ELECTRIC COOKING
and
WATER HEATING**
and save up to
\$50



And **NOW's** the time to change to cool comfort. Get ready for the hot weather ahead with **ELECTRIC AIR CONDITIONING**.

SAVE UP TO \$50

We will pay \$25 toward the installation cost of each Electric Range and Water Heater replacing a flame-type appliance. Get full details from your dealer or plumber or call our nearest office.

FLORIDA POWER CORPORATION





dealer use in promoting the "Time To Change" theme.

Assisting dealers and plumbers during the campaign were Florida Power Corporation home service advisers and residential sales representatives. In many of the company's divisions, these Florida Power sales people wrote letters to customers who were not using electric ranges and water heaters, advising them of the special installation savings being offered. Home service advisers gave both store and home appliance demonstrations whenever they were requested by dealers, and residential sales representatives worked to develop prospects and close sales.

Quotas Were Exceeded

When the final results of the "Time To Change" campaign were tabulated, the company found that quotas had been exceeded in all categories. Electric range and water heater replacements totaled 1034 for the campaign period, or 29.3 percent over the replacement quota of 800. In addition, 11,443 tons of residential electric air conditioning were sold to top the sales quota of 10,000 tons by 14.4 percent.

Further evidence of the campaign's success is the fact that total electric range sales (including replacements) during the three-month period totaled 6249, for an increase of 1774 or 39.6 percent over the same period in 1958. Total water heater sales (including replacements) numbered 6241, which was 1536 or 32.6 percent over last year. Electric air conditioning sales were up 1028 tons over 1958, for an increase of 9.9 percent.

Highly pleased with the successful campaign, company officials felt the replacement of 584 gas ranges and 450 gas water heaters was particularly outstanding, coming at a time when interest and propaganda on natural gas was at its height.



One of the display windows used to promote Florida Power Corp. Time To Change campaign.

Residential sales supervisor for Florida Power Corp.'s St. Petersburg division, Howard Khouri, shows a colorful Time To Change window banner during one of the meetings held to introduce the campaign to dealers and plumbers. In addition to window banners, Florida Power also distributed bumper stickers, handout pieces and advertising materials for dealer use.



Manufacturers, distributors, dealers and power suppliers must collaborate to make servicing easy, quick, and inexpensive; utilities have a special responsibility to fill the gaps where normal servicing channels break down.

WHOSE RESPONSIBILITY IS APPLIANCE SERVICING?

By FRED M. KIMBALL,
Vice President, Kansas Gas & Electric Company

While I was visiting friends recently they told me that they had planned to trade in their conventional washer for a new automatic. Before buying, however, they discussed the matter with several people who owned automatic washers and learned that while an automatic is a wonderful help in the home laundry, it costs a lot to keep it running. It frequently needs service, they were told, and repair costs are high. So, my friends decided to keep the conventional washer and hang the clothes on the line.

Assuming there are just a million such decisions . . . and I expect there are a number of millions . . . appliance dealers, distributors and manufacturers have lost about \$250,000,000 in business from automatic washers alone. Since conventional-washer owners are not good prospects for automatic electric dryers, maybe there is another \$100,000,000 in potential business lost.

Those are important dollars lost to the appliance industry, but they are only a fraction of the consumer dollars that may go into other investments which do not use the kilowatthours that power suppliers have for sale. These kwh sales and dollars of appliance business lost are lost because we haven't fully accepted the responsibility to make certain that customers get good ap-

pliances that are easy and inexpensive to service. Further, these lost sales may not be as important to us in the total electric business as loss of customer confidence and creation of poor customer relations from manufacturer to local serviceman.

Regaining this lost confidence and calming frayed tempers is a Herculean task. It deserves the best efforts of all of us, and it must be a cooperative effort of manufacturers, distributors, dealers, and power suppliers.

Major Service Problems

In a recent survey by the AEIC Appliance and Servicing Committee, these were the most frequently mentioned service problems:

1. Parts aren't available from the manufacturer or distributor when needed.
2. There is a lack of qualified servicemen.
3. Charges are high for quality of service rendered, and customers do not know cost of the job before it is started.
4. Parts that must be repaired or replaced are inaccessible; complexity of appliances compounds difficulty of obtaining qualified servicemen.
5. Customers' lack of knowledge about proper use of appliances increases service calls and costs.

6. Lack of parts interchangeability makes large inventories and special tools necessary.

7. New appliances are in the field before service manuals.

8. Factory assembly is sometimes careless and inspection poor.

9. Some dealers will not service appliances they do not sell even though they are the same brand.

10. Service is too slow because of a serious parts backorder problem.

There were 22 additional service problems mentioned in the survey.

What Is Being Done Now

Manufacturers are showing an awareness of the problem. One is designing every major component to last the lifetime of the appliance, and making small inexpensive parts easily replaceable. Another has reorganized his service functions to give them division status. Still another has all new designs reviewed by service, sales, and production, and coordinated to be serviceable and functional.

Manufacturers have been quick to accept appliance demonstration workshops sponsored by AEIC as a means of improving designs to make servicing easier and less costly.

Power suppliers are also showing greater interest in appliance servicing by employing service coordi-

nators, sponsoring service training programs, service assistance centers, dealer service programs, and other approaches.

Industry associations and publications are joining in the program. However, even though most service problems are solved, it will take unending effort by the industry, directed by many groups, to keep it that way.

Here are my personal opinions of how manufacturers, distributors or factory branches, dealers or independent servicing agencies, and power suppliers might divide the appliance servicing responsibilities.

The manufacturer might consider:

1. An organizational structure that gives top executive status to the company's marketing function, which should cover all operations concerned with customer buying and satisfaction.

2. The marketing group should work closely with engineering to design service out of appliances, to make what service that is required easily and quickly performed by one man, or self-serviced by the customer.

3. The marketing group should work closely with the quality control group to be sure appliances work properly when they are connected at the buyers' homes, and that the package contains easy-to-read-and-understand instructions.

4. The marketing group should work closely with those in charge of service to be sure that service manuals and functional parts stocks are in the field when the first appliances are sold. They should be sure that servicemen are trained to service new models when they get the first call to service one of them.

5. Manufacturers should weigh cost of lost business because of time lag while redesigning with customer service in mind against loss of prestige if appliances are sold that will not work right or cannot be serviced easily.

6. Manufacturers should be certain that production people understand that a parts backorder means an appliance out of service, and that it is just as important to produce a complete appliance . . . probably more important to the continuing success of the company.

7. Manufacturers' communication

lines should function effectively and swiftly on service problems from dealer to top design engineer where corrective action can be taken promptly.

The distributor or factory branch might consider:

1. Set up the organization with service in mind.

2. Cooperate with manufacturers on service policies and practices; see that they are carried out and that information on how to do the service job quickly and inexpensively gets to the dealer serviceman.

3. Set up dealers with service facilities or help them control independent servicing agencies; consider recommending flat-rate charges for a completed job.

4. Hold training schools for servicemen before the product goes to the dealer; keep servicemen informed promptly of design changes made within the model year.

5. Maintain functional working parts stock in adequate volume at locations close to point-of-use; give the service supervisor sufficient help to efficiently and promptly receive, acknowledge, and ship parts orders; establish a good follow-up system to watch parts back orders, then work it to a fair-you-well.

6. Be sure the communication system functions smoothly, effectively, and promptly to the manufacturer.

The dealer might consider:

1. If you fail to service not only the appliances you sell but all others of your franchised brand, the whole system fails.

2. If you do not choose to service appliances then see that customers get good service connections.

3. Let your distributor and manufacturer know how you feel about their quality control, design for easy servicing, crating or packaging, parts stock situation and parts shipping promptness.

4. Tell them what keeps your customers coming back to you as they progress toward living better electrically.

After reading a power supplier's suggestions to manufacturers, distributors, and dealers for better appliance servicing, it may seem like all our problems will be solved if these ideas are carried out. However, all will not follow through on

them even though they may admit the responsibility of doing so. Of course, all will not fully agree with these suggestions, and there will always be breakdowns in the chain of events which will bring about good servicing.

What Utilities Can Do

No matter how dependable the electric service from generator to meter, it does the customer no good if her appliances break down and she can't get them repaired easily and inexpensively. Therefore, I feel that power suppliers have not only the responsibility of providing an uninterrupted supply of electricity but a special responsibility of seeing to it that customers get uninterrupted service for their electric appliances. They must take a continuing interest in servicing to fill the gaps where normal channels break down. They must assume the role of watch dogs for their customers.

Utilities have begun to find out what is needed to improve appliance servicing and many are doing something about it. While progress is slow and will continue to be slow, there are several things they can do to build on initial successes:

1. Help solve the manpower needs by glamorizing appliance service work as a career for high school students.

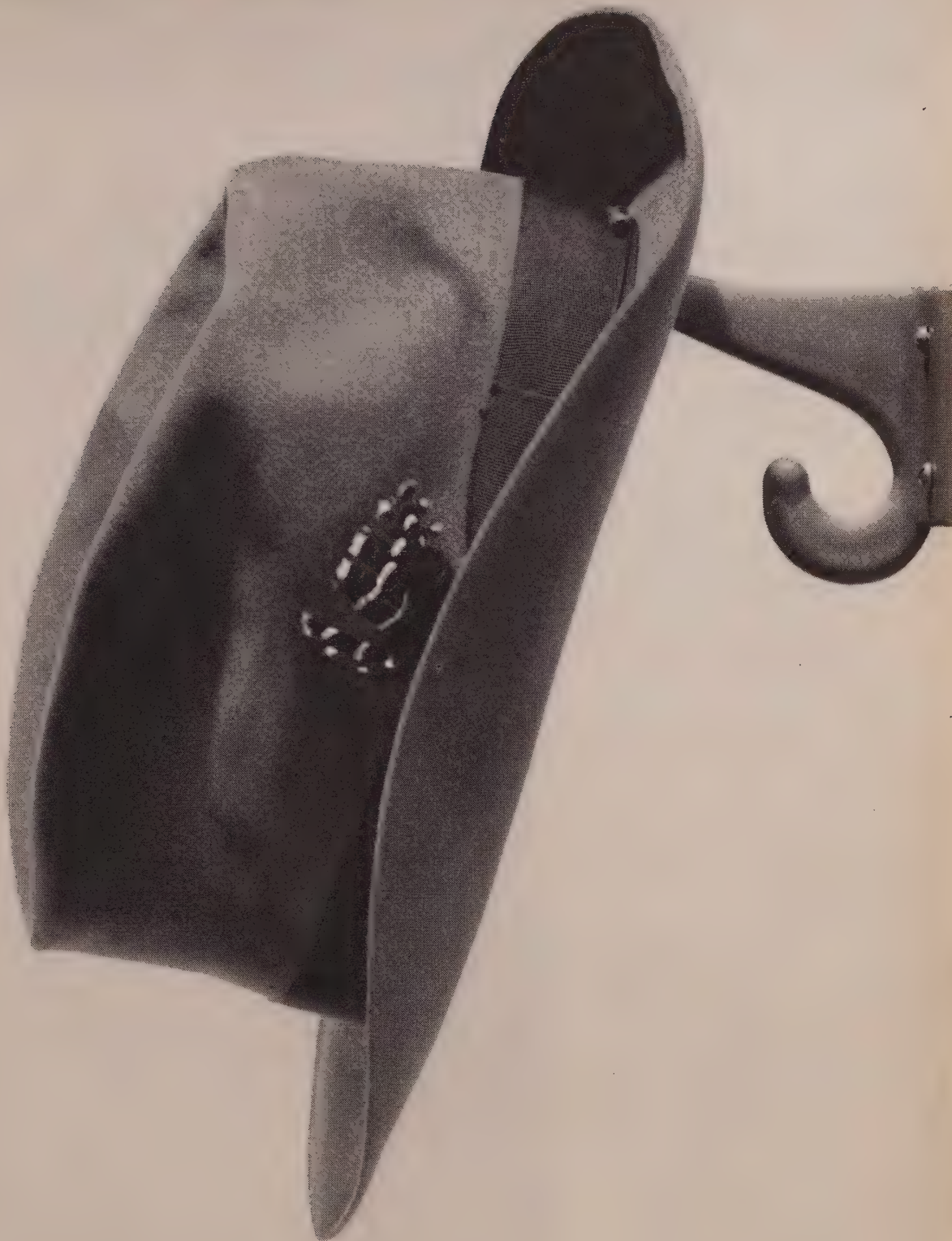
2. Encourage public schools to establish adult training programs for appliance servicing.

3. Establish customer relations training programs for servicemen and servicing contractors.

4. Educate the consumer in the need for occasional service and for the servicing agency to charge a reasonable fee if he is to provide good service.

5. Build prestige for the servicing contractor by building in the customer's mind the image of a business man who is honest and well qualified to provide good service.

We now have the ball rolling. Let's keep at it and continue to help all our sales allies from the manufacturer to the dealer and servicing agency. Then there will be fewer and fewer people in America who will continue to put up with the old because of service costs and inconveniences of having new appliances which won't work when they are needed.



It may be old hat, but it wears well.



KERITE CABLE

*it's the **KERITE** that makes the difference*

General Office—30 Church Street, New York 7, N. Y.



SALES OFFICES:

Albuquerque, Ardmore, Pa., Birmingham, Boston, Chicago, Cleveland, Denver, Glendale, Cal., Houston, Lake Wales, Fla., Portland, Ore., St. Louis, Salt Lake City, San Francisco, Seattle



HOW RATE IMPROVEMENT UPS APPLIANCE SALES

Three years of results of an "All Electric" rate schedule has not only increased water heater sales 400% but has also improved sales considerably in house heating, ranges, laundry dryers and other appliances.

By H. A. STROUD
Promotion Manager
Monongahela Power Co.

MONONGAHELA POWER COMPANY's "All Electric" residential rate schedule has been extremely helpful in finding an answer to the problem of our retarded residential growth.

Our standard residential schedule had been in effect since before World War II. Although we felt that we had made at least average progress in home lighting, our market acceptance of electric ranges, water heaters, laundry dryers and other appliances was not satisfactory. We were also interested in the promising new market for electric house heating. Our analysis of our problem of residential growth possibilities made it clear to us that either a revision of our standard residential schedule, or a new additional schedule was imperative. Following the necessary rate studies we announced our new additional Schedule AE, for "All Electric," on August 1, 1956. This was made available to all customers except in outlying counties for "All Electric" living provided they used an electric water heater.

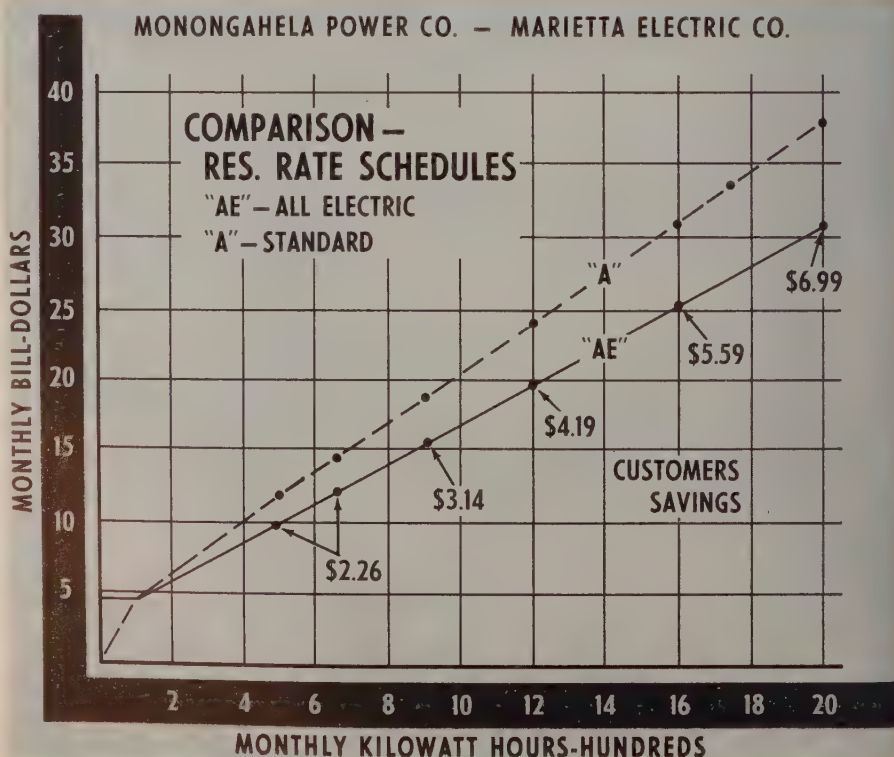
Results Encouraging

The results have been most encouraging to us not only in water heater sales but in house heating, ranges, laundry dryers and in other appliances. Our results have improved over anything we had ever experienced.

The background, current circum-

stances and sales problems of every company are, of course, different. For that reason it is appropriate that first I describe briefly certain facts about our company, its market and other circumstances affecting our situation.

Our service area is located principally in the Northern half of West



Editor's Note—This is the essential text of a paper presented by the author before the Sales, Advertising and Public Relations Conference of the Southeastern Electric Exchange held in New Orleans, La., November 16-18, 1959.

Virginia. We are spread out over approximately 13,000 sq mi in 32 counties. It also includes three subsidiary areas: The Marietta Electric Company in one county and portions of adjacent counties in Ohio, the West Maryland Power Company in about half of one county in Western Maryland, and Monterey Utilities Corporation in about half of one county in Northwestern Virginia.

The largest community is Parkersburg, West Virginia, with 40,000 population. Others are Clarksburg, 32,000; Fairmont, our headquarters town, 29,000; Morgantown, 25,000; Weirton, 24,000; Marietta, 16,000; and many smaller communities.

Industries include coal mining, steel, glass, potteries, chemical, lumber, a few fabricating plants, oil and natural gas. Also of special note are more than 25,000 low income farms averaging about 50 tillable acres. A majority of farmers seek other work on part time to supplement their income. For many years, the average per capita spendable income in our service area has been between 27 percent and 40 percent below the national average.

We serve 220,000 customers of which 193,000 are residential and farm.

Gas Competition

Natural gas utility companies serve about 80 percent of our customers. There are several thousand loyal families associated with local gas production, transmission to Eastern states and local distribution. For many years the local retail gas rate averaged about 40¢ mcf. This now has increased to about 60¢.

The gas companies serving our area are principally subsidiaries of two of the most aggressive gas holding companies. They have strong advertising, sales incentives for dealers and their salesmen and, in most cases, some free appliance service to customers.

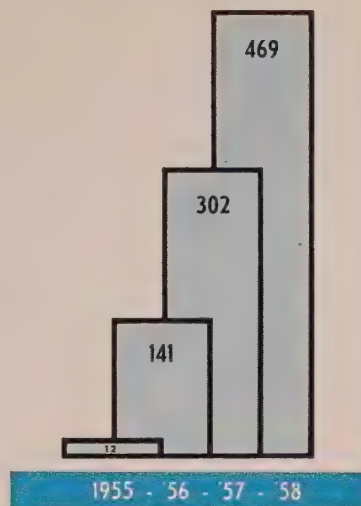
Practically all of the appliance dealers and plumbers sell both gas and electric appliances.

Merchandising Program

Our Company has had an aggressive merchandising program since our early history. We have sold a complete line of major and small appliances including ranges, water heaters and dryers. Resistance

HOMES HEATED ELECTRICALLY

MONONGAHELA POWER CO.—CUMULATIVE
& SUBS.



house heating and heat pumps are sold only by dealers. Our sales volume has averaged \$13.00 to \$17.00 per customer for many years.

We too have had dealer promotion programs which more recently have included cooperative advertising, and payments for dealer advertising of ranges, water heaters and dryers. Incentive plans for dealers and dealer salesmen have been included. For several years our local men have been regularly calling on dealers to counsel with them in their sales efforts.

Free Wiring Plan

Of particular note is our free wiring plan for the installation of major appliances. Since 1931 we have offered free wiring for service entrance, main service panel and range circuit. This has also been offered for water heaters since 1946 and for laundry dryers since late in 1954. The cost of this wiring is a capital expenditure down to and including the outdoor meter. The balance is a promotional expenditure.

However, despite all our efforts our residential growth was unsatisfactory. It was clear that our customers' experiences with the cost of operation of water heaters on our standard schedule left a wrong impression about the cost of electricity for other uses. This meant that 300 kwh per month for water heating cost \$5.25, resulting in complaints and occasional removal of the heaters.

All Electric Rate

As you know, for many years other utilities had been offering special rates for water heating. Every company adjacent to us offered one. Such special rates were in either of two rate forms: off-peak rates with controlled hours of use, or floating block rates which have uncontrolled hours of use.

After considerable study of the pros and cons of these rate forms, of our costs, and of our marketing problem we announced a floating block "All Electric" rate schedule. The accompanying curves show a saving for the customer of \$2.26 at 500 kwh to 650 kwh use. This savings then increases progressively to \$4.19 at 1200 kwh use, \$5.59 at 1600 kwh use, and \$6.99 at 2000 kwh use.

Thus we provide a double incentive for the customer to use an approved electric water heater. First, he can use 300 kwh at 1¢ for his water heating. And second, he gets a 20 percent reduction from 1¾¢ to 1.4¢ for all kilowatt hours over 650. In effect, large users such as those with house heating, air conditioning, heat pumps, or a combination of complete major appliances and modern lighting can receive enough reduction to offset their entire cost of water heating. Thus the water heater is made an important feature and incentive for the all electric home. It also is a selling feature for our Retail Sales organization and for dealers.

Three years of results with this All Electric rate schedule have been encouraging. Important improvement has been made in sales of water heaters, ranges, dryers, and a good start has been made in the house heating market. Our kilowatt-hour growth has reached new highs. Although our service area was hurt economically too in 1958, our sales were maintained at higher levels than prior to the new rate. The accompanying charts show that progress.

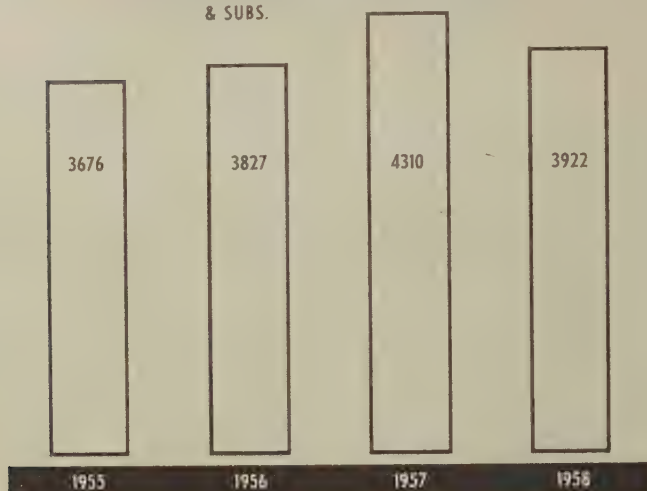
Water Heaters

Water heater sales have increased substantially. For many years there were 300 to 500 new installations per year. There are now 1,800 to 2,000 per year.

Over 90 percent of these heaters are of the quick recovery type with

TREND-ELECTRIC RANGE INSTALLATIONS

MONONGAHELA POWER CO.—ANNUAL, 12 MO. END.
& SUBS.



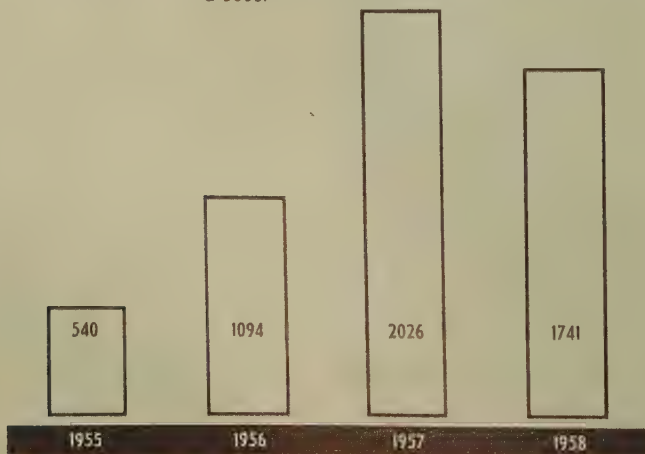
TREND-ELECTRIC DRYER INSTALLATIONS

MONONGAHELA POWER CO.—ANNUAL, 12 MO. END.
& SUBS.



TREND-ELECTRIC WATER HEATER INSTALLATIONS

MONONGAHELA POWER CO.—ANNUAL, 12 MO. END.
& SUBS.



40 to 50-gal capacity. We have promoted this type since it became available because old standard NEMA wattages are not fast enough to meet the competitive speed of recovery of modern gas water heaters.

No Supplementary Heaters

Perhaps I should also mention that our All Electric rate schedule requires that all hot water requirements are to be heated electrically meaning no furnace coils or other supplementary heaters connected to hot water lines. It also requires a minimum of 30-gal storage of hot water. The maximum permissible wattage connected on the line is 5,000, requiring interlocked thermostatic controls.

About 30 percent are sold by our Retail Sales group and 70 percent are sold by dealers and plumbers.

Ranges

Range sales have increased. Although the All Electric schedule did not reduce the cost of operating an electric range there was enough change in public opinion of the cost of electricity that there was more interest in electric cooking. About 500 more ranges per year, or an increase of 15 percent in new installations is being realized. Approximately 18 percent are sold by our retail salesmen and 82 percent by dealers.

Dryers

Dryer sales have almost doubled. Prior to announcement of our free installation policy late in 1954 the best data available indicates that there were less than 2,000 new installations per year. Then in 1955 there were 3,500. Since the All Electric rate this has been increased to over 6,000 units per year with about 14 percent sold by our retail salesmen and 86 percent by dealers.

House Heating

House Heating progress has been especially gratifying. On January 1, 1956 we had 11 homes heated electrically with resistance heating. Today this has grown to 669 electrically heated homes including 17 heat pumps and 662 resistance installations. All of these were sold individually except seven apart-

ment houses with a combined total of 36 units. We do not have merchant builders who build large groups of units at one time on a speculative basis.

Over 90 percent of them are located on streets and roads where natural gas is available. In our climate the degree days vary from 4,800 to 6,500. Our customer satisfaction with electric heating is most encouraging for the future.

Kwh Per Customer Gain

In 1955, the year before our All Electric Rate Schedule, we had an increase of 137 kwh, then an all-time high. Since the new rate, the increase reached 198 in 1958, which compares favorably with the national average of 192. Never before has our company reached the national average. In 1959 we expect a drop to about 180 to 185 caused by the lowered volume of major appliance sales in the 1958 recession and the strike periods of 1959.

I should also mention that in the 1946 to 1950 period our lines were extended to about 45,000 customers. These were generally low income farm customers who barely had enough money for simple wiring, much less for major appliances. Considerable dilution of kilowatt hour averages occurred in that five-year period.

This dilution, combined with the lower per capita and income and the low competitive gas rates caused us to continually lose by comparison with our closer neighboring companies. We still have lower saturation of ranges, water heaters and dryers than they do, and lower than the national averages. As a result, our 2,452 kwh per customer still is one of the lowest averages in the industry.

Conclusions

1. About half of our accelerated growth in 1958 compared with 1955 come from water heaters. The balance comes from house heating, dryers and ranges—in that order. In the future these proportions may change if we can continue our growth of house heating. It seems reasonable to expect in our service area that the water heater and house heating will compete for first place in importance on our growth in the next 20 years.

2. Our All Electric rate schedule not only encourages water heating growth but all electric living. Sales of water heaters are aided by being accompanied with the bigger idea of All Electric Living—now the Live Better Electrically package. In a sense, it is a Gold Medallion Home rate.

3. As a result of this rate change we now estimate that we will exceed our prediction for 1960 of 2,700 kwh per customer made in early 1956. This is 200 kwh per customer higher than our previous trend indicated before the rate change, and accounts for at least \$500,000 more annual revenue than we would have attained without the change.

4. In our service area the free wiring policy is essential to the growth of major appliance saturation because of low per capita income and natural gas competition.

5. It is necessary to have a strong promotional program to gain the full advantage of our All Electric rate schedule. Customers do not buy just a price. They buy benefits—when they understand what they are—at what they believe is a reasonable price. We have to do the best we can do in advertising and promotion, including dealer education and incentives, employee education and incentives, cooperate with manufacturers and distributors, dealer and trade shows, and personal calls by trained personnel.

6. For our service area we have these conclusions about water heater products:

(a) The quick recovery water

heater is absolutely essential to get a more competitive size of heater that will provide the customer with enough hot water for his needs today and tomorrow. The cost of the heater is important as well as the cost of operating it.

(b) We earnestly hope that the EEI Water Heating Committee working with the NEMA Committee will succeed in getting down the price of water heaters by more standardization, and that manufacturers' research will also help in this effort. We hope all utilities too will cooperate in this effort. We need lower priced water heaters to compete more adequately in today's market.

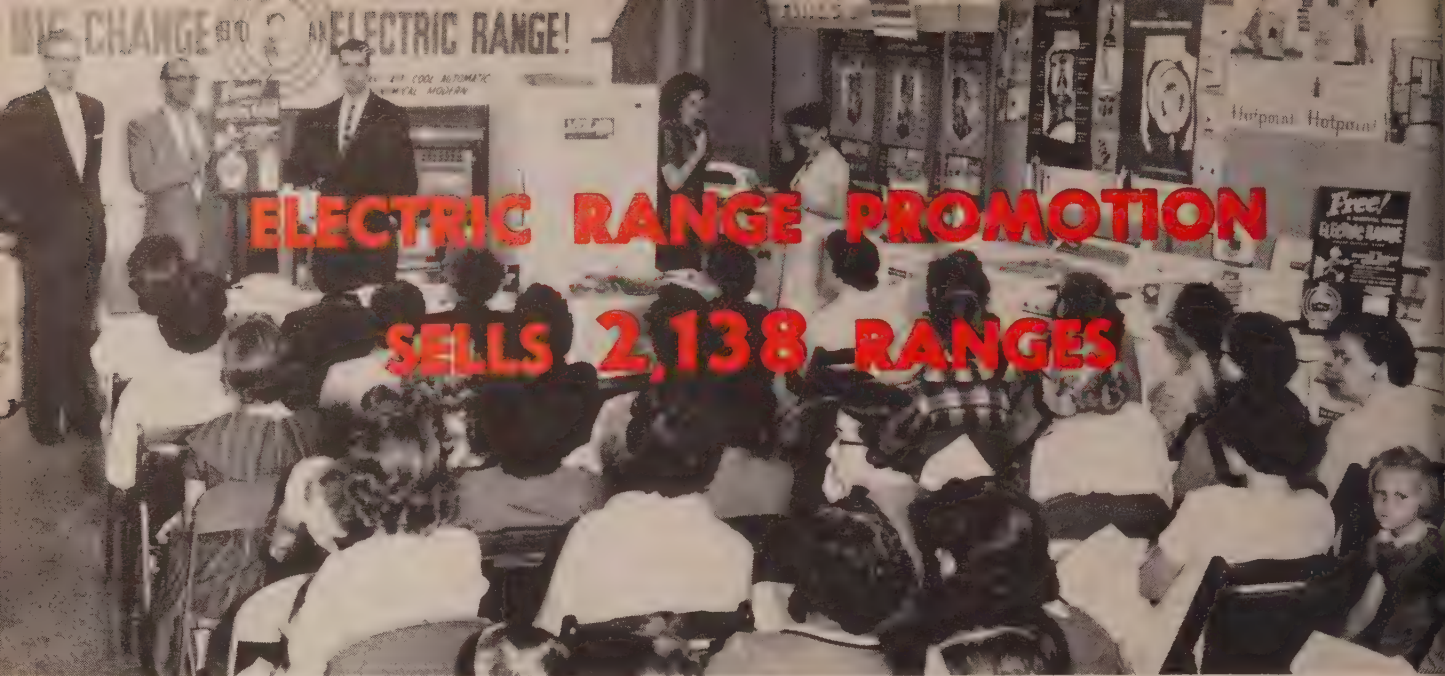
7. The Live Better Electrically program of Edison Electric Institute is most timely for us. It adds impact and prestige to our efforts. It is a bargain, giving us much more than we could possibly buy for the same money for ourselves. We hope that our industry will continue to support this program.

8. Our appliance manufacturer friends tell us that nationally the electric appliance industry has been losing ground in recent years, in the percentage of the consumer's dollar which is spent for electric appliances. This is surely a serious challenge to the future growth of both manufacturers and utilities.

KWH PER CUSTOMER-ANNUAL GAIN

MONONGAHELA POWER CO.
AND SUBS.





Sales producing electric range demonstration resulted in two direct range sales and an excellent prospect list at Pasadena Central Heating & Appliance Company. Fifty-two women turned out for the demonstration by HL&PCO home service advisors. All took advantage of the opportunity to register for the weekly free electric range drawing. This was only one of 18 such schools which attracted 947 people.

Record promotion, eclipsing all earlier Company campaigns, was coordinated with and supported by NEMA and EEI. Here's how it was done.



Highlight of Humble, Texas FFA fair was a drawing for a free Westinghouse electric range held in the center of the rodeo arena at the conclusion of the final performance. Joe Thomason, Thomason Furniture Company—who provided the free range—is shown assisting cowgirls in filling out entry blanks in the fair grounds Commercial Building.

A TWO-MONTH Spring campaign, tied in with NEMA and EEI promotions, by Houston Lighting & Power Company, sold 41 electric ranges per working day to establish a new record sales total of 2,138 built-in and free-standing units. This hard-hitting campaign also increased sales for the balance of the year—bringing the total for 1959 up to 10,339.

Advertising And Publicity

The national support included two-page, four-color ads in *LIFE* and the *SATURDAY EVENING POST* in April and May, the two campaign months. Seven hundred radio commercials on nine stations were made. Electric cooking and all-electric kitchens were also featured on the company's two weekly television programs devoted to showing all-electric homes.

Houston Lighting & Power ran 94 newspaper ads for an approxi-

mate total of 140,000 lines. And, 33 dealers inserted 89 tie-in campaign ads using Houston L & P symbol drop-in in area newspapers. Full-page kick-off newspaper ads announcing weekly drawings for free electric ranges highlighted the opening phase of this outstanding promotion. Ad allowances to dealers were approximately 25%. Banners and consumer booklets produced by NEMA were widely used, as well as sketches from NELP. Company billboards and truck signs also carried electric range messages.

Free Range Drawings

Entries for the free electric range drawings were deposited at dealers' stores throughout the service area. An average of 2,000 entries per week were deposited for the first three drawings. This provided large numbers of new range prospects for salesmen to talk to right on the

By W. S. SECREST

Advertising & Marketing Department
Houston Lighting & Power Company

30% TO 50% LIGHTER WEIGHT,
UNIT SHIPMENT MEAN
YOU GET . . .

Fast, Easy Installation with General Electric Air-Blast Breakers

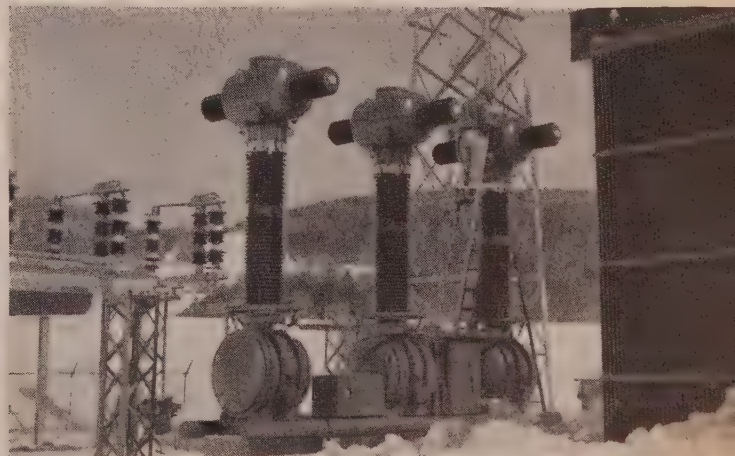
Installation of General Electric's air-blast circuit breakers is so simple it takes only a fraction of the time normally required to install comparable oil breakers. Here's why:

- **Units are 30 to 50% lighter** than comparably-rated oil breakers. They can be handled with one light-duty crane—no need to skid and jack them into place.
- **Current transformers and insulating columns are integral units.** Shipped in one piece, they are easy to unload and to lift onto foundation pads.
- **Interrupter heads are shipped complete,** ready to be lifted onto the support insulators and bolted into place after protective crating has been removed.

Why settle for less? For fast, easy installation, for practical protection for transmission systems 115 to 460 kilovolts and beyond, and for reduced maintenance, turn to General Electric air-blast circuit breakers. Contact your G-E Sales Engineer for more information. Or write to Section 494-05, General Electric Co., Schenectady 5, New York.

Progress Is Our Most Important Product

GENERAL  ELECTRIC



ONLY SEVEN WORKING HOURS were required to install this three-phase G-E 115-kv air-blast breaker. Steps included unloading from railroad car, uncrating, transporting to installation site, lifting into place, and bolting down.

dealer's floor while the entry blanks were being filled out and signed by the salesman. The salesman of each winning entry received \$20.

In checking one group of 300 entries, four people said they were still cooking on oil stoves, and one was even using a wood stove. In addition, many entrants were using antiquated flame-type ranges.

"Bonus Bucks"

The Company furnished brochures outlining the complete program for dealers and dealer-salesmen. Also supplied were "bonus-bucks" reporting forms for each sale and distributor bonus forms. The Company paid \$3.00 for the

first free-standing range sold, \$6.00 for the second, and \$9.00 for the third—a total of \$18.00 for each group of three free-standing ranges sold during the campaign. (Where free-standing ranges were sold to multi-residential units, including apartment projects, bonus payments were made on a flat \$3.00 per range basis, instead of the progressive three-sale plan.) Three dollars per range was paid on all built-in range sales.

Cooking Schools Held

The utility Home Service Department staff conducted 18 cooking schools in dealer stores with total attendance of 947. Range demon-

strations were made at a number of department stores and fairs by the utility service advisors.

In view of the tremendous success of this range campaign, another is being held this year. In the last four years, each range campaign has eclipsed the previous one. Ranges sold during the first six months of 1959 were 5,084. This was a 10% increase over the same period in 1958 and 29% over that of 1957. Of the more than 56,000 electric ranges sold in HL&PCO service during the past 10 years, 49% have been sold in the past three years. This unprecedented increase emphasizes the ever-growing trend toward all-electric living.



Getting set for range kickoff, Dealer Sales Counselor Tom Moore helps Jack Reid of Jack Reid Appliances, Lake Jackson, put up free display material to help draw attention to campaign as well as the free range drawing designed to bring new prospects into his store each week.

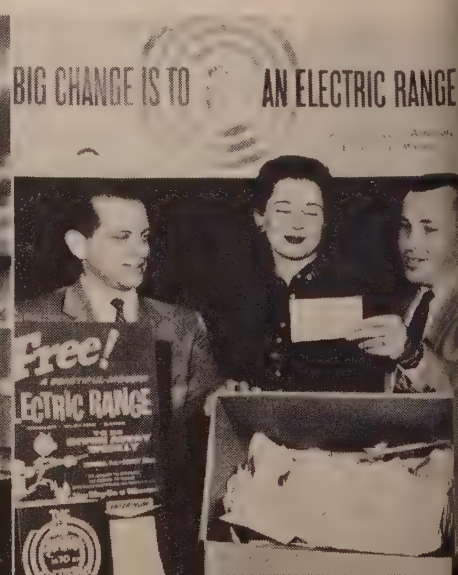


Houston area appliance dealers paid close attention as C. P. Blum, HL&PCO residential and farm sales manager, outlined details of free range drawings at an electric range campaign kickoff breakfast. The large turnout of enthusiastic dealers indicated an aggressive sales campaign.

Built-in and free standing range display on main sales floor of HL&PCO building attracted many prospects.



Drawing held in Electric Building each week by distributor and dealer representatives and home service girl from HL&PCO. Left to right are Bob Reader, vice president, Readers Wholesale Distributors Inc., Westinghouse area distributor; Mrs. Ramona Magee, HL&PCO, home service advisor; and George Flott, owner of Oak Forrest Appliance Co., Houston.



GENERAL ELECTRIC'S VARIETY
OF STRUCTURAL DESIGNS
MEAN YOU CAN...

Meet Your Exact Station Requirements, and Save Installation Time and Money

General Electric's flexible approach to the design of outdoor stations permits an almost infinite variety of station layouts, while helping you save installation time and money.

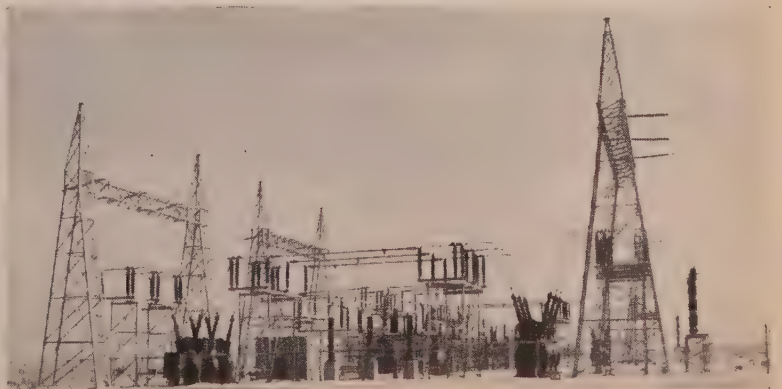
An almost infinite number of station layouts is possible because of the variety of structural styles available. Lattice-column or rolled-shape structures are available in galvanized steel or aluminum. Stands, pedestals, trusses, and towers are available for mounting station equipment and components.

You save time and money, because delivery of structural items and other station components is co-ordinated with your installation schedule. There's no waiting, and yet no unnecessary handling and storage of parts.

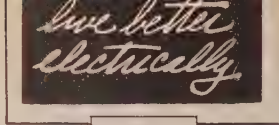
Why settle for less? Contact your G-E Sales Engineer for more information. Or write to Section 495-10, General Electric Co., Schenectady 5, N. Y.

Progress Is Our Most Important Product

GENERAL  ELECTRIC



FROM A VARIETY OF STRUCTURAL STYLES offered by G.E., lattice-work structures were chosen for termination structures and equipment stands in the switching station for Unit No. 5 at the Oak Creek Power Plant near Milwaukee, Wis.



ISA Notes Computer Integrated Generation Trend

"I believe that in a few years all major new generating stations will have computer integrated control systems," said W. L. Chadwick, vice-president of Southern California Edison, in his keynote address on "Progress in Control Systems" at the 3rd National Power Instrumentation Symposium of the Instrument Society of America, held in San Francisco May 9-11. The Symposium was developed by E. D. Kistner, Philadelphia Electric.

Automated generating plants received the lion's share of attention during the sessions. Excerpts from some of the technical papers follow.

Station Automation

Costs and savings plus advantages of generating station automation were discussed by R. A. Baker, chief engineer, electric engineering dept., Public Service Electric and Gas.

For the 342-mw unit his company is studying, he expects savings of \$1,215,000 plus some additional indeterminate amount are indicated with an additional outlay of \$755,000 for digital computer control. The breakdowns are as follows:

Estimated Cost of Automation

342-mw Unit		
Computer and associated equipment	\$	560,000
Installation labor		125,000
Total direct costs	\$	685,000
Field overheads		45,000
Engineering and design		75,000
Contingency		45,000
Total installed costs	\$	850,000
Computer eliminates need for:		
Data logger	\$90,000	
Automatic dispatch console	5,000	95,000
Total additional funds required for computer	\$	755,000

Capitalized Savings of Automation

342-mw Unit		
Reduced possibility of catastrophic damage	\$	250,000
Fuel costs can be minimized		
Unit	\$450,000	
System	20,000	470,000
Outage time can be reduced		100,000
Fewer personnel will be required		
Operating	200,000	
Performance	135,000	
Testing	60,000	395,000
Total calculated savings	\$	\$1,215,000

Plus factors:

1. Reduced maintenance
2. Reduced instrumentation on future units.

Mr. Baker believes control systems should be integrated by a digital computer for the following reasons: (1) unit operation is complex, (2) pre-planned operation is always followed, (3) correct decisions must be made rapidly, (4) fuel costs can be minimized, (5) outage time can be reduced, and (6) fewer personnel will be required.

"We believe a digital computer is the best choice for power plant automation because the digital computer has significant advantages over other devices in terms of reliability, accuracy, flexibility, simplicity, and cost," he concluded.

Huntington Beach Station

The value of the digital computer as a tool, now available to the power plant planner and designer was discussed by A. L. Guidero, senior mechanical engineer, Southern California Edison. He painted an overall picture of automatic generating plant control at Huntington Beach Steam Station.

Plant control equipment for Huntington Beach Steam Station, Units 3 and 4 is designed to control automatically the following basic plant operations: (1) cold start-up, (2) hot re-start, (3) normal operation, (4) normal shutdown, and (5) emergency shutdown.

During the start-up function, direct control will be exercised by the computer or the boiler by initiating burner controls and limiting firing rates until proper working temperatures of boiler metals, gas and steam are obtained. The computer will also control the operation of all of the miscellaneous boiler appurtenances that must be operated during start-up.

Similar control will be exercised by the computer on the turbine-

generator. Turbine supervisory instruments will be monitored and start-up guided accordingly. Likewise, generator functions, metal temperatures, both in the turbine and generator will be monitored and various key valves in the boiler and turbine by-pass and feed water systems will be operated directly by the computer.

When satisfactory start-up is complete, the computer will yield plant control and be content to scan, monitor, record, compute and alarm while the plant operates under guidance of conventional control components, such as the boiler-turbine control system and the normal complement of lesser sub-loop controls.

"The appearance of the computer as a practical control device, we believe, has opened a new avenue of improvement with which the designer can help to minimize the rate of increase in cost of generation," he said. (*This paper will be published as a feature article in an early issue of EL&P—Ed.*)

Boiler Control System Design Concepts

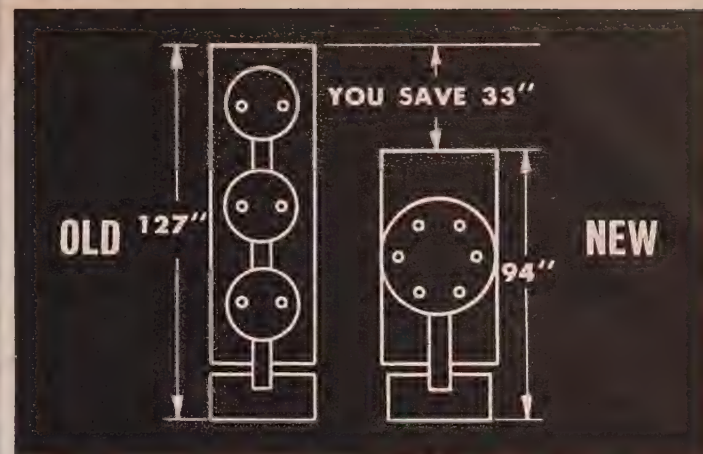
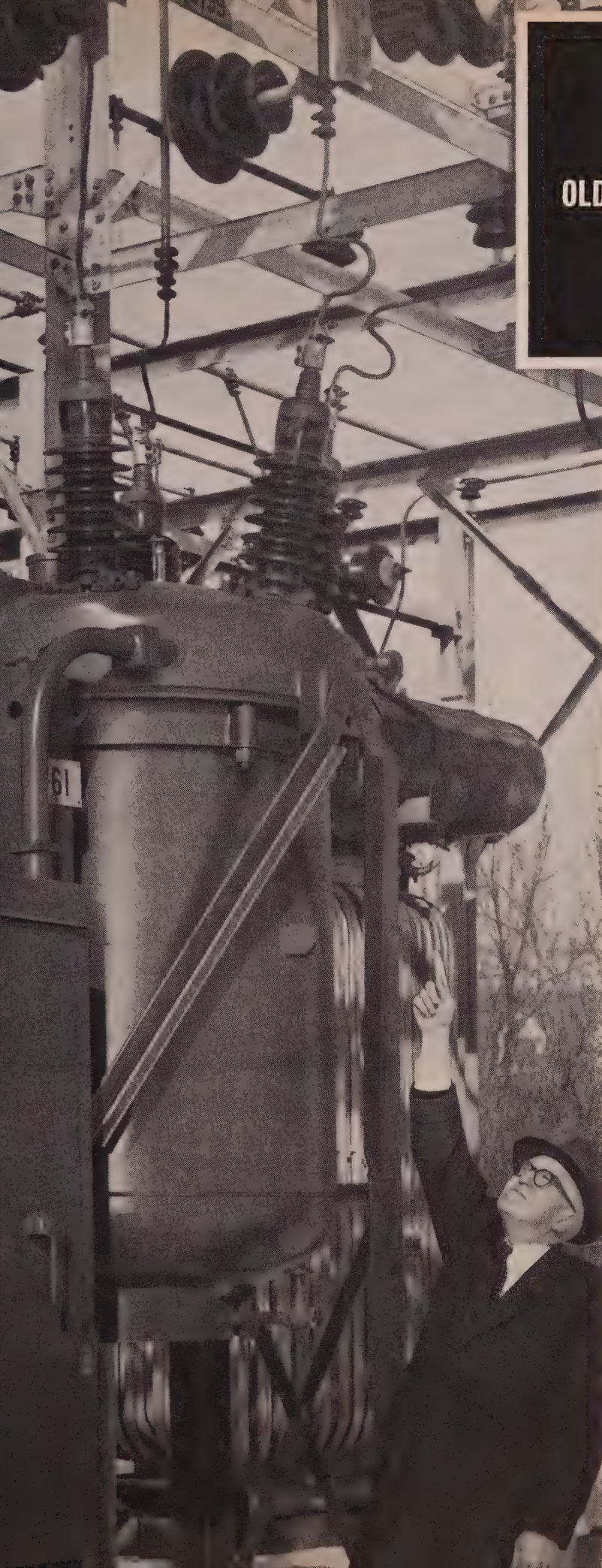
Broad system design concepts for boiler control systems on large steam generator units were outlined by E. D. Scutt, Leeds & Northrup Co. His company's experience indicates that:

"1. Boiler control systems should be designed to accommodate the inherent plant limitations normally encountered, and to provide (a) minimum interaction between control loops, and (b) optimum operation under steady as well as variable loads.

"2. Electrical generator output can advantageously replace the steam flow measurement in control systems for large units.

"3. The successful measurement of oxygen in a number of installations during the past few years has made it one of the most important input variables for boiler controls.

"4. The Direct-Energy-Balance



Comparative dimensions of G-E one-tank and conventional three-tank breakers rated 34.5 kv, 1200 amps.

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ONE-TANK SUB-TRANSMISSION
BREAKERS, YOU CAN . . .**

Reduce Space Requirements and Installation Costs

Space requirements and installation costs are substantially reduced with General Electric one-tank sub-transmission breakers.

Because G-E breakers accommodate all phases in one tank, they weigh at least 700 pounds less than three-tank units of the same rating, and require 25% less space.

Compactness and light weight mean that G-E one-tank breakers can be mounted on smaller foundation pads, saving you material and excavation costs. Considerable savings in overhead buswork can often be realized, too.

General Electric one-tank breakers are shipped with all components in place—you need only position the breaker and make necessary service preparations.

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concept (the energy input to the boiler is directly adjusted to give the desired electrical output from the generator, and the turbine governor regulation is influenced by steam pressure), initially developed for once-through boiler units, should be modified and extended to provide integrated regulation of the turbine governor, combustion, feedwater, steam temperatures, and associated equipment on all types of large boiler-turbine units.

"5. Control systems of the future should more closely coordinate the boiler and turbine operation, and, where feasible, require only a minimum of supervisory input signals from the digital computer in tomorrow's complete automatic plant," he concluded.

Control Systems, A Logical Approach

"Maximum safety, efficiency and reliability of a new generating unit can not be realized until all controls and interlocks are functioning properly. Complete coordination and full use of automatic control systems prior to initial start-up requires a logical approach to their commissioning," said William J. Kerchner, Jr., electrical engineer and Robert M. Maust, mechanical engineer, Gilbert Associates, Inc.

They stressed that control systems are as important as the devices which they control. Their design, installation and preparation for starting must be planned and executed with the same care as that which is devoted to the primary equipment.

"In order to derive full benefits from the control systems, they should be fully commissioned at the time of initial operation," they said. "Maximum safety and efficiency of the plant can not be realized until all controls and interlocks are functioning properly. We could venture to say that only a very few modern power plant units have been initially started with full potential of control, interlocking and safety features. This is a critical period. There exists a great possibility of loss from physical damage, loss of kw capacity, hazard to operating personnel and risk to a large investment.

"The logical approach to the commissioning of control systems consists of five stages; namely conception, procurement, engineering, in-

Participating in ISA's 3rd National Power Instrumentation Symposium were W. L. Chadwick (left), vice-president Southern California Edison, keynote speaker, and William J. Burns, manager of mechanical engineering, Long Island Lighting, and director of ISA's Power Industry Div., who presented a paper on "Instrumentation for Peaking Capacity."



stallation and pre-startup. In each of these stages there must be a complete understanding of the problems involved and the mode of operation. Functional diagrams provide a means of transferring information from the conception stage through to the pre-startup stage. Coordination is required among construction personnel, vendors' service representatives, engineers, operators and maintenance personnel. This coordination will permit complete commissioning of control systems at the same time as the primary equipment which they control. This approach will minimize the loss possibilities."

Preventing Furnace Explosions

Requirements for true prevention of furnace explosions were outlined and discussed by W. L. Livingston, project engineer, fuel equipment, Combustion Engineering, Inc.

"Avoiding the situations which are necessary for a puff will require the development of reliable sub-systems to ignite, stabilize, indicate, and safely shut-down main burner operation," he said. "Although requirements for true furnace protection may seem strict, they must be satisfied before a reliable system for preventing explosion can become a reality," he warned.

An effective, practical flame safeguard system must contain four main features:

1. An auxiliary ignition system which can reliably ignite and stabilize any main burner product over a range of operating conditions considerably greater than those anticipated. "This auxiliary ignition

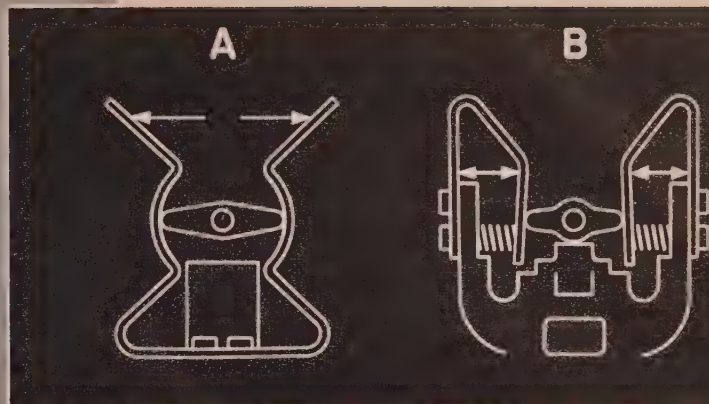
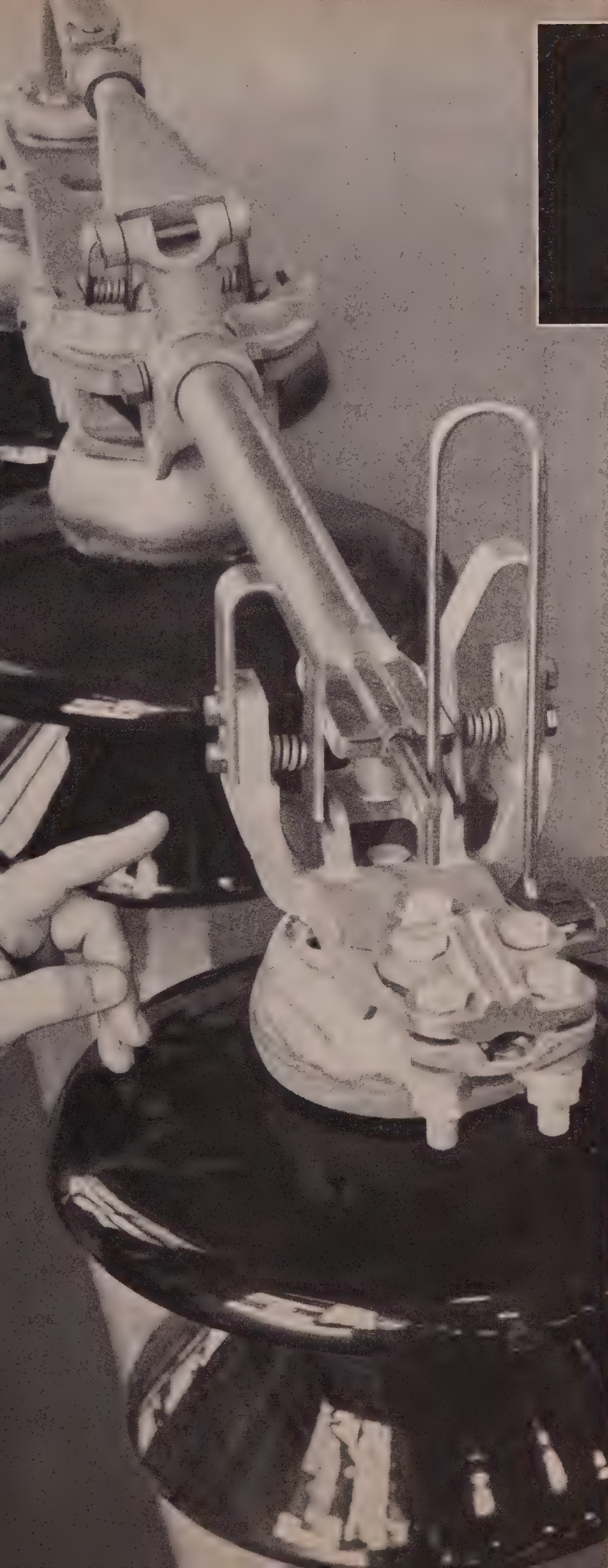
equipment is not simply provided," he said. "Much work needs to be done to establish what amount, form, and location of ignition energy is optimum for reliable ignition and stability of various burner products."

2. A reliable "fail safe" flame detector set-up for the auxiliary ignition system which can indicate the amount of ignition energy available. The flame monitor can then be used with the appropriate devices to insure safe ignition and/or stabilization of the main burner product. Combining items 1 and 2 with proper furnace start-up and operating sequences will insure safe main burner ignition and stable burner operation—when the auxiliary ignition system is in service.

3. A reliable "fail safe" flame detector system for each main furnace flame envelope which can detect the total ignition energy available. The flame detector should be interlocked into the other control dub-loop interlocks so that, as long as the main flame envelope is functioning satisfactorily, the main burner supplies will continue to flow.

4. A system which can, under any condition, safely shut-down a furnace. A safe shut-down system should be developed for use on all automatic or manually operated units.

Such a system might include, for example, a device which could replace burner air supply with a supply of relatively cool inert gas—before the burner fuel supply was tripped. Putting the inert gas through the burners would help prevent additional air flow to the surface.



ORDINARY OPEN CONTACTS (A) are forced apart during short-circuit conditions. **G-E inverted-loop contacts (B)** actually increase their grip during short-circuit stresses to help assure continuous, reliable performance.

GENERAL ELECTRIC RF-2 DISCONNECT SWITCHES PROVIDE . . .

Positive Operation During High Short-Circuit Stresses

Inverted-loop contacts with insulated stainless-steel back-up springs put the squeeze on the blade of a General Electric RF-2 disconnect switch. As a result, the blade stays firmly in contact even under high short-circuit stresses to help assure continuous, reliable service.

When the blade is closed, current flows up and around the stationary contacts, causing them to put added line contact pressure on the blade. This squeezing pressure actually increases during momentary flow. In short-circuit tests, the switch blade stayed in position without distortion or pitting of contacts.

Other features which contribute to the continuous, reliable performance of General Electric disconnect switches include:

- **Rotating Rear Insulator** which rotates the switch blade into and out of contact for ice-breaking action;
- **Arcing Horn** which diverts current away from contacts during opening and closing to help eliminate contact pitting and erosion.
- **Minimum Number of Current Transfer Points** to reduce heat losses, increase switch life, and reduce maintenance.

For more information, contact your General Electric Apparatus Sales Engineer. Or write to Section 495-07, General Electric Co., Schenectady 5, N. Y.

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Cite Obligations to Management in Areas Of Budgets-Forecasting, Data Processing

In NELPA's recent Accounting and Business Development Conference, new emphasis was given to a number of particular obligations to utility management, including these—the preparation of budgets useful in forecasting, informing management adequately concerning developments in the electronic data processing field, training accounting personnel so they can be counted on to become top-rank in the years ahead.

Perhaps the greatest use of a budget is for financial forecast, noted C. H. Blom, accountant-in-charge of budgets and reports of the Idaho Power Co. As the money market becomes tighter and public power competition becomes keener, he predicted, budgeting must take an increasingly more important place in the accounting and management function of the utility industry.

"I believe therefore, that we, as accountants should be striving for a better understanding of our own Company's budgeting system and looking for ways of improvement therein," he observed. "We then can further aid, not only the forecaster with his problems but management in his decision making.

"If we are to provide management with the best possible tool for decision making and gain his confidence in our abilities as forecasters, we should be striving to improve our budgeting methods. What kind of a budget should we prepare? Should we take the conservative, or the *what we are sure* can hap-

pen—the safe approach? Or should we follow the optimistic or *what we would like to see* happen—the hope so approach?

"Personally, I do not like either of these but rather choose to be a sort of the middle-of-the-roader. it seems to me we should express management's best judgment as to what is *most likely to occur*, barring unforeseen circumstances or events beyond the control of management.

"Even this most likely to occur approach should undoubtedly contain a certain amount of "reach" or optimism in order to provide a challenge to the operating groups. How much reach is the problem. Because results worse than budgeted always seem to be frowned upon more than results better than budgeted, we as accountants will probably have a difficult task in getting reasonable and realistic, rather than safe estimates from other departments."

Mr. Blum commented that it is invariably necessary and always advantageous to consider several plans of financing before the best result can be obtained. Each plan must be carried through the long-range forecast to observe the effect on future periods, and this can run into a voluminous and almost endless task, he noted.

"But, much of this floundering approach can be eliminated by preparing a basic or preliminary forecast in which all estimated additional capital is considered to be a debt security at a constant reasonable interest rate without thought as to what particular type of security

is to be issued. This preliminary determination will provide approximate interest costs, income taxes, net income and other figures needed to determine approximate cash requirements for the period. These figures are then used to arrive at similar requirements for each progressive period under consideration," according to Mr. Blum.

Training Accounting Supervisors

John H. King, controller for the Puget Sound P. & L. Co., stressed the desirability of training accounting supervisors to meet a utility's own standards. According to Mr. King, the accountant with the potential to become a top-rated supervisor should be well qualified in these basic considerations: (1) technical competence, (2) broad approach to problems, (3) devotion to the free "enterprise concept," (4) loyalty, and (5) basic interest in political and community activities.

Mr. King revealed that Puget Sound P. & L. has recently inaugurated a training program available to those who have passed an advance accounting examination and who are otherwise acceptable to a selection committee. The program involves an on-the-job type of course, requiring three to four years for completion. Training "spots" in customers' accounting, data processing, payroll and construction, classification, and internal auditing departments are held by trainees for about nine months each.

"The development of a broad approach to problems is more difficult than technical competence and probably more valuable. Accounting decisions must be made with a



NELPA conference panel on reports included the following panel members (left to right): Paul Conrath, of Washington Water Power Co.; E. S. Gardiner, of British Columbia Electric Power Co., Ltd.; J. F. Doran, of Montana Power Co.; and T. A. Finch, of Idaho Power Co.

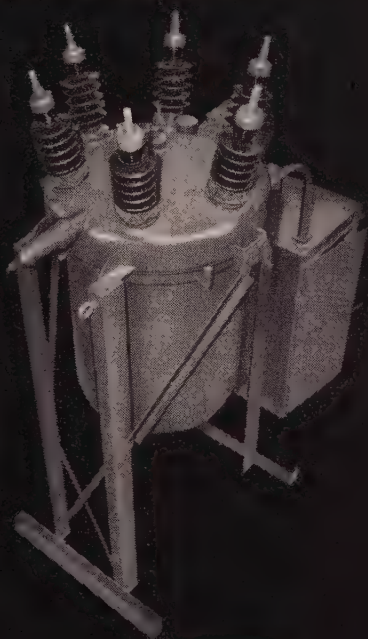


Opening session of the NELPA Accounting and Business Practice session was addressed by Portland General Elect. Co.'s Pres. Frank M. Warren. Others (l. to r.) are: Claude Kingsbury, of Ohio Brass Co.; Harry L. Clark, of P. G. & E., conference chairman; and NELPA's exec. mgr., Al Krieg.

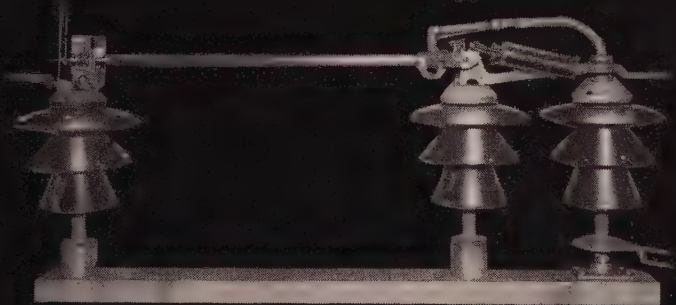
Single column of Type ATB air-blast power circuit breakers—115-460 kv.



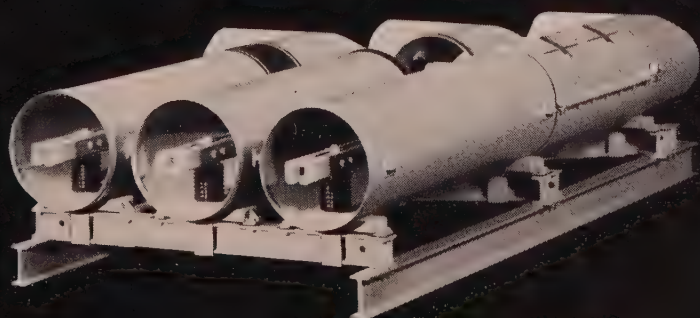
Completely designed and coordinated outdoor stations—7.5-230 kv.



Single-tank sub-transmission breakers—14.4-46 kv.



Disconnect switches—7.5-345 kv.



Isolated phase bus—14.4-34.5 kv, through 20,000 amps.

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You Get Top Product Design—From giant 460-kv air-blast breakers to custom-tailored outdoor stations, General Electric high-voltage switchgear equipment is designed for easiest installation, top safety, optimum performance, and dollar-saving ease of maintenance.

You Get Results of Research—Important General Electric developments in the high-voltage switchgear field include:

- First single-tank, five-cycle outdoor sub-transmission breaker;
- First modern air-blast transmission breaker;
- First isolated-phase bus with conductors having a 105°C maximum hot-spot temperature.
- First computer-designed outdoor station.

You Get Nation-wide Service—G-E sales offices and service centers throughout the nation assure you of prompt, courteous application and installation assistance; also, fast, high-quality maintenance and repair service.

Why Settle for Less? Whether you want one disconnect switch, or a complete, custom-tailored switching station, with General Electric you get the *best* in switchgear. For information on specific equipments, contact your G-E sales engineer. Or send in the coupon below.

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- ☐ Disconnect switches
- ☐ One-tank sub-transmission breakers
- ☐ Isolated phase bus
- ☐ Outdoor stations 7.5 to 345 kv

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full knowledge and understanding of their impact in other areas. Taxes—rate regulation—financial and coverage requirements all play an important role in the utility business and all must be considered in today's accounting decisions.

"How we develop a broad approach is difficult to determine. I think some of this ability is native. Some people seem to naturally see the 'forest'—others of us see only the debits and credits. However, education and well-rounded training help immeasurably in this respect. At Puget our plan of job rotation contributes to a broadened understanding, and it would be more broadening if it extended into other than accounting fields. Our trainees do not now but probably should spend time in line headquarters and in purchasing, engineering, sales, and other departments," Mr. King suggested.

Mr. King observed that the job of impressing those outside the utility with "the sincerity and importance of our convictions" is a job ideally suited to the accounting supervisor, "for he is in an excellent position to know and understand his Company."

He concluded: "In my estimation, as citizens and accounting supervisors, we have a tremendous responsibility to protect the principles in which we so firmly believe."

Impact of Electronics Weighed

Arthur W. Hatch, manager of accounting for Ebasco Services declared the impact of electronics on the utility industry can now be evaluated confidently, with the great deal of experience accumulated in the past several years. He observed that accounting activities are still the area of primary interest in most cases, and looked upon as the "bread and butter" workload of data processing because they frequently represent the major source of economies and economic justification for mechanization. Here the usual objective is cost reduction in the routine tasks of billing, accounting, and record-keeping—sometimes coupled with a desire for more timely or more extensive information reporting than is practical by other means.

Utility interest in engineering applications of digital computers is

wide and growing, according to Mr. Hatch. And, the third potential objective of computer usage is to produce more and better management information for control of operations. Assessing this area, he said:

"The fact is that much useful and valuable data lies buried in the great mass of accounting information we now process in a utility. We have not as yet researched the ways and means to distill from it much that could be useful to management. Analysis of billing and sales data can yield significant knowledge of our customers and our markets. Analysis of cost and man-hour performance can be designed to produce better criteria for control of operations. The extent to which computers may, as time goes on, contribute to utility management is not so much a matter of machine capability as it is of determining in concrete monetary and physical terms what criteria can be usefully applied and to what extent further statistical analysis can aid in the evaluation and control of operations. Of all the unresolved questions of EDP application, this area remains one of the most uncertain at this point—yet still one of promising possibility for future development."

Mr. Hatch referred to the "feasibility study as still the basic analysis which should be made with great care and accuracy, since the resulting decision may commit the company to a course of action involving substantial expenditure of time and money." In such studies, some of the conversion problems and costs may be of considerable magnitude, he pointed out, listing some of the "critical factors" as follows:

"Personnel displacement and related savings through mechanizations should be conservatively estimated. It is unrealistic to assume ideal performance solely because of a machine system or to credit such system with savings which might be achieved by other means.

"Machine characteristics and running times required to process the proposed workload now and for a reasonable future period must be realistically evaluated. Estimating errors in this area can be serious if it develops that additional equipment or second shift time adds sub-

stantially to expected costs.

"Estimated planning and conversion costs in connection with a mechanized data processing program should fully recognize the many factors involved."

Mr. Hatch concluded:

"Today, with so many varied types of computer systems and peripheral equipment on the market, it is likely that most companies will face a choice between alternative systems within range of their requirements. Now the choice involves at least a dozen manufacturers, each with a product that merits serious and open-minded consideration. These manufacturers offer models of different capabilities and cost, each usually subject to modification in some degree on the building block principle I have referred to. Hence the selection of equipment becomes a most important step.

"Whether or not electronic data processing is a matter of immediate concern in your individual situation, we, as accountants in the industry have an obligation to keep our managements adequately, and accurately, informed regarding developments in this field."

Automatic Meter Reading?—"No"

Delmar L. Brown, supt. of Portland General Electric Co.'s testing dept., offered a survey of the economics of remote automatic reading of customers' meters.

"Although it may be technically possible to read customers' meters by automatic remote devices, the savings to be gained are never likely to be sufficient to cover the costs of the automatic devices," he concluded.

Mr. Brown also advised that other methods of reducing meter-reading costs have scant value because the present cents-per-month-per-customer costs are so low that there is little area of possible savings.

The PGE representative notes, too, that the matter of "public contact" achieved by the meter reader is also involved. "The services he performs in finding stopped meters and current diversion, and the reporting of service complaints have a real dollar value to the utility which would be lost in a program of automatic meter reading."

Only Reason For Appliance Innovation

Serve The Customer Better: Whirlpool President

"There should be but one valid reason for innovation in home appliances—to serve the customer better," said Whirlpool Corp. President Robert E. Booker, at the recent National Appliance Technical Conference.

Recognizing that innovation is a tremendous stimulant to customer buying, Mr. Booker said the appliance industry cannot allow the romance of innovation to overshadow the basic criteria of acceptance, namely product performance.

"The fact that we approach market saturation on many products means that the customer preference on replacement will be influenced to a measurable degree by the performance of the appliance to be replaced.

"The best salesman a company can have is a good product. The best assurance of company growth is satisfied customers."

Issuing this challenge to engineers, and casting a vote for planned obsolescence, he added, "... the process of developing a new product feature is a complex one and can be accomplished best by an orderly procedure. He warned that the process of annual model changes, or biannual changes may create pressures that lead to change for change sake "and without real benefits."

It is the engineer's responsibility, he said, to master the art of discrimination to sort out the potentially valuable channels of exploration so as to concentrate his talents where

the odds favor profitable results.

It is the sales professional's responsibility to appraise the innovation's marketability, both from a sales and a service point of view.

Mr. Booker observed that where a nearly saturated market exists, such as refrigeration, the industry should strive to implement planned obsolescence by creating a demand for multiple usage of like products. An ice-making and drink-storage appliance in the game room could very well supplement the kitchen refrigerator. With the rapid acceptance of wash and wear fabrics, a supplemental washing machine for the bathroom may not be too far distant.

"We should not," he emphasized, "limit ourselves to a single unit of many appliances per home when we may have opportunities to double that potential."



The new 20-story Kaiser Center, largest office building west of Chicago—rises impressively over Lake Merritt in downtown Oakland, California. The building uses over 2-million pounds of aluminum electrical and architectural materials, including some 370 miles of aluminum wire and cable. The Center will provide executive and general staff offices for the more than 50 affiliated companies of the Kaiser industrial empire.

G-E Announces New Isolated Phase Bus Design

A new design for a high current isolated phase bus that eliminates induced current in adjacent steel structures and significantly reduces hysteresis and eddy current losses has been completed by General Electric, according to A. Hamilton Powell, equipment engineering manager, high voltage switchgear department.

Speaking to a recent gathering of the Engineering and Operating Section of the Pacific Coast Electric Association, Mr. Powell said that design of the G-E bus was based on the principle that current flowing in one direction in a conductor and in the other direction in an enclosure results in practically no external flux. Laboratory tests at G-E indicate 90 percent less external flux over unshielded conductors

(Continued on next page)

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"Superforms* make my
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"We have to look at
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in terms of *return*... all
the way from negotiating
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"With Fanner Super-
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"PROTECTIVE TWIST"

ARMOR RODS...

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PATCH RODS...

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TAP ARMOR...

Protects conductor at
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FANNGRIPS...

For dead-ending strands
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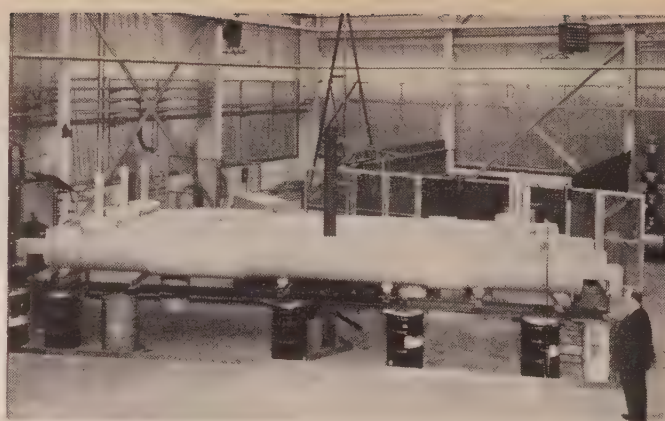
Join two ends of conductor
wire

PLASTIC PRODUCTS...

For conductor surface
protection

FANNER

The Fanner Manufacturing Co.
Brookside Park—Cleveland 9, Ohio
Division of Textron, Inc.



New isolated phase
bus recently shipped to
PG&E is shown under-
going heat-run tests in
G-E's Philadelphia high
voltage switchgear labo-
ratory. New design
reduces external flux
as much as 90 percent
by means of a recently
developed method of
enclosure shielding.

with practically all heating and
power losses eliminated in adacent
metalmembers.

By connecting the ends of a three-
phase bus enclosure together, and
with proper proportioning of the

diameter and thickness, a closed
circuit for the induced circulating
currents is created.

Now in production, the first ship-
ment of the new bus has been made
to Pacific Gas and Electric Co.

Westinghouse Changes Trademark

Westinghouse Electric Corp. has
redesigned its circle W trademark
for the fifth time in its 74-year his-
tory, according to an announcement
by H. S. Kaltenborn, vice president
—assistant to the president. In ad-
dition, the logotype "Westinghouse"
has been restyled to make it more
compatible with the trademark.

The new trademark retains the
traditional circle but the dimensions
have been changed and three small
solid circles have been added to
the peaks of the W.

"Although only one of the origi-
nal elements—the W—has been ap-
preciably altered, the new mark
has greatly increased flexibility,
pictorial interest and memora-
bility," Mr. Kaltenborn said.

"Further," he stated, "it is
decorative, and was designed spe-
cifically to suggest ideas pertinent
to our business. Some of these ideas
are a molecular structure, wires



Objective of the Westinghouse redesign was to
keep the symbols modern and to improve cor-
porate identity. The Westinghouse logotype was
redesigned along with the circle W.

and plugs, a wiring diagram and
tubes and light bulbs."

The new trademark and logotype
were designed by Paul Rand and
were developed as part of a broader
design program.

Mercury Lamp Innovation Produces Greater Efficiencies

Utilities, industrial concerns, mu-
nicipalities, and other users of mer-
cury vapor lighting will get more
light for their money as the result
of improvements in lamp construc-
tion introduced by Westinghouse.

A new "Lifeguard" arc tube con-
taining an electrode which drasti-
cally reduces the blackening of the
arc tube during the life of the lamp
will now be used in 175-, 250-, 425-,

700-, and 1000-watt mercury lamps.
According to Gordon W. Howson,
Westinghouse lamp division large
lamp marketing manager, the new
arc tube provides the customer with
up to 20 percent additional light
throughout the life of the lamp.
Lamps with the new construction
have a rating of over 40 percent
longer useful life.

The new lamps have another im-

important feature as well, Mr. Howson pointed out. They are made with "Weather Duty" outer bulbs which will not break when splattered with water and will not crack or craze when exposed to industrial fumes that cause ordinary bulbs to deteriorate.

In laboratory tests, 400-watt mercury lamps using the new arc tubes still produced approximately 85 percent of their initial lumens after 10,000 hours of use. Lamps using the older type had lost almost 40 percent of their initial light output. Mr. Howson reported the 400-watt lamps have also shown excellent results in field tests.

Most present-day electrodes employ thorium to prevent rapid vaporization of the tungsten coil, Mr. Howson pointed out. The electrode in the "Lifeguard" arc tube employs a new chemical formula. The material is embedded inside the electrode, completely shielded from the electric arc discharge. It is protected in this way from being eroded away. As a result, far less material is deposited on the quartz arc tube during burning and more of the light being produced gets through the lamp and is usable.

Simplify Lighting System Layout, Installation

A new program which allows customers to order and install scientifically planned lighting systems by the book using pre-calculated application information and layouts, provides faster delivery, and reduced customer inventory costs has been introduced by General Electric. Called the "Preferred Lighting Program," it will mean savings to the customer in both inventory costs and time spent drawing layouts, according to C. J. Meloun, G-E Outdoor Lighting marketing manager.

Key to the program is the "Designer's and Buyer's Guide to Preferred Lighting" that can be used by customers in designing, applying, specifying, and buying lighting systems. It allows utilities and other customers to draw upon some 148 Preferred Lighting catalog numbers that will fill almost any lighting need.

Most of the components can be shipped in from one to three days.



*You can
be sure
when you install*

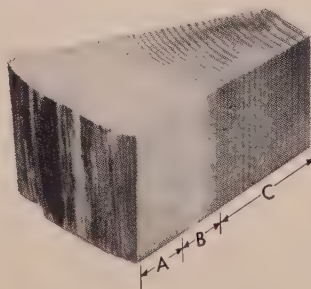


*Western
Red Cedar
Poles!*

**... even where the most severe
decay conditions exist**

LIFE-SPAN'S thermal top-to-butt treatment permeates the ENTIRE sapwood... assuring longer pole-line service regardless of adverse installation or weather conditions. Besides being completely immune to decay, LIFE-SPAN Poles are clean, safe to climb and are carefully selected for uniformity and quality.

Want added years of pole-line service at far less per annum costs? Specify LIFE-SPAN Western Red Cedar Poles when you buy.



Actual laboratory tests prove... pentachlorophenol permeates both inner sapwood and outer sapwood the LIFE-SPAN way, making it impossible for the sapwood to decay under the most severe conditions. The above is a section taken from a Western Red Cedar pole after years of actual pole-line service under adverse conditions. It shows (A) the outer sapwood, (B) the inner sapwood and (C) the heart wood—all in perfect condition.

PAGE & HILL, Inc.

Minneapolis 3, Minnesota



COMING YOUR WAY

*the Sangamo J3, the
only meter with.....*

TRUE MAGNETIC FLOTATION



true
MAGNETIC
flotation

J3

THIS IS THE ONE, developed to meet your needs... **THE SANGAMO SINGLEPHASE J3 WATTHOUR METER**. This is the new and noteworthy development in watt-hour meters this year. One of the exceptional advances in metering in any year!

The moving system of the J3 is not supported or suspended. It floats, pure and simple, permanently and without friction, on a field created by magnets that are dimensionally and magnetically uniform. Stability is assured by the use of specially bonded Alnico in *all* magnetic components of the system. And, the J3 has these other *new* features:

A VISIBLE, SELF-CLEANING GAP that cannot be bridged by metal particles.

A CONTROLLED FLOATING SYSTEM for best performance on high loads. Side thrust is substantially reduced; tilt error is insignificant. These features combined with the unique slow speed of Sangamo J Meters, give you a moving system that is *guaranteed for life*.

ADVANCED INSULATION LEVEL for better protection and easier heat dissipation.

SMALLEST SIZE for easiest handling.

PLUS THESE TRADITIONAL SANGAMO ADVANTAGES: highest torque; slowest speed; lowest watt loss; sectionalized construction; corrosion-resistant finishes and materials; glaskyd base.

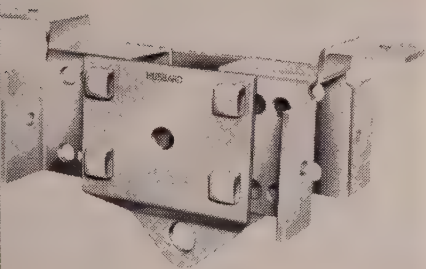
Your Sangamo Representative is coming your way with a sample of the J3. Become familiar with its "pluses". Then, plan to put it to work... for it has everything you want in a watt-hour meter. And that's a promise, for this is one of the really great ones.

SANGAMO ELECTRIC COMPANY / SPRINGFIELD, ILL.

I-Frame Phase Fitting

A phase fitting that will adjust to normal variations in crossarm spacing on double arm transmission structures as well as to all standard arm sizes is available from **Hubbard and Co.** Fittings can be locked in five different positions to provide spacings from 8½ in. to 12½ in. in one in. steps. They are formed from ¼ in. steel plate, hot galvanized. V groove and insulator string attachment holes are provided.

Circle item #30 on reply card



Pressure Relief System

An improved pressure-relief system for station-type lightning arresters give positive protection against explosion of failed units. By **Westinghouse**, the new system employs two breakable metal diaphragms at the top and bottom which rupture when internal pressure exceeds a safe limit. Also, the hot ionized gases are expelled through ports that transfer the arc to the outside of the arrester in one-fourth cycle.

Circle item #31 on reply card



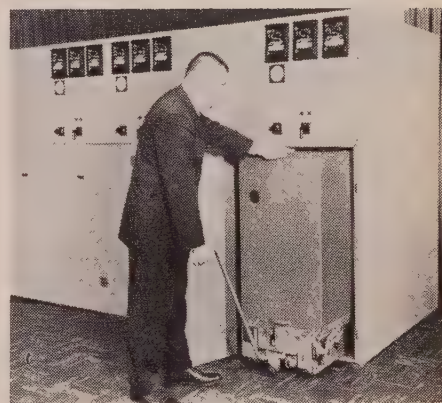
NEW PRODUCT

DESIGN



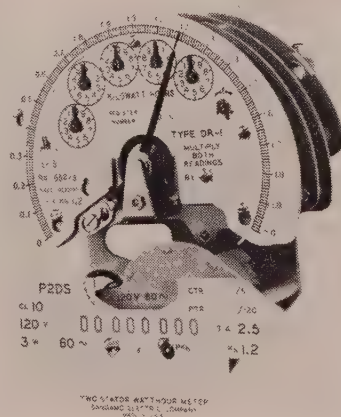
Design New 4160-v Breakers, Switchgear

A completely new design of 4160-volt circuit breakers and switchgear—first major re-design of equipment in this voltage rating in the history of the industry, according to the manufacturer—has been announced by **I-T-E Circuit Breaker Co.** The breakers combine stored energy closing and ironless blow-out, affording faster fault interruption and faster closing of the contacts, plus reduced size. The result is greatly improved fault protection, increased safety, higher reliability, easier handling and simpler installation, and service. The new switchgear incorporates closed-door drawout—giving greater safety and unobstruction, reduced size, improved bus and wiring design—



with full voltage flame retardant, track resistant insulation on all bus, closed-door breaker position indicator, and easy access to current transformers without disturbing bus.

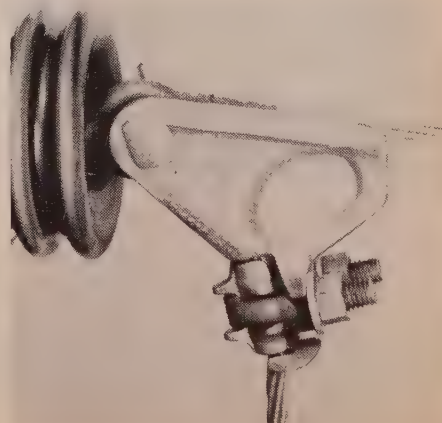
Circle item #32 on reply card



Dead End Clamp

Alcoa's **Rome Cable** division has developed a lightweight aluminum clamp for full tension dead end connections in electrical conductors. Called the 301 bolted dead end, it was designed for installation on ACSR, sizes No. 6 to 2/0. Tests of the clamp at Alcoa's laboratories have demonstrated that it holds in excess of the required 95 percent of rated conductor strength for all ACSR conductors in the range.

Circle item #34 on reply card



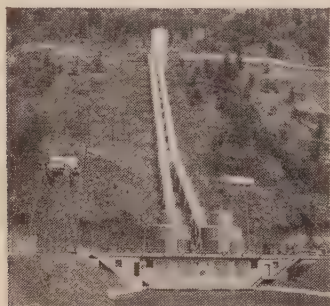
Dual Range Register

Sangamo Electric Co., has announced the Type DR dual range mechanical register featuring a reversible scale plate which automatically operates the interlocking range mechanism. Field changes require only loosening screws and reversing the scale plate. This in turn releases a spring-loaded pin which automatically changes the gearing to double the capacity of the register. No readjustment is necessary after scale change.

Circle item #33 on reply card



Which Pioneer service do you need to complement your own staff?



DESIGN AND CONSULTING ENGINEERING SERVICES

Pioneer specializes in designing power plants and offers design service for fossil fuel, hydro and atomic plants. It will also assist in forecasting load growth, in site selection, in purchasing and expediting of equipment and construction management. Pioneer's other services include substation, transmission and distribution studies and design.

SERVICES IN REGULATORY MATTERS

Pioneer offers its services in all phases of Federal, State and local utility regulation, including natural gas and electric rate matters, certificate proceedings, licensed project accounting requirements, depreciation studies for rate case and income tax purposes, cost allocations and special studies.

CORPORATE SERVICES

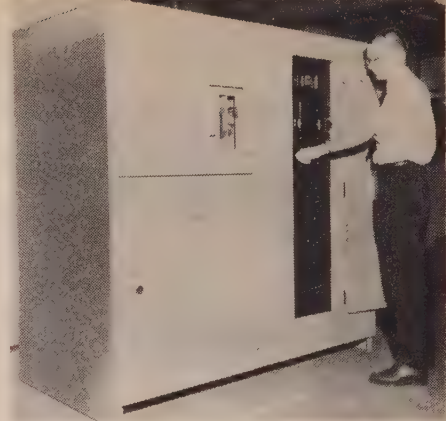
Pioneer offers its services as business and management consultants; stock transfer and dividend disbursing agents; financial, accounting and tax consultants.

Write for Booklet "PIONEERING NEW HORIZONS IN POWER"

*Serving Electric Utilities and
Industrial Power Users Since 1902*

Pioneer Service & Engineering Co.

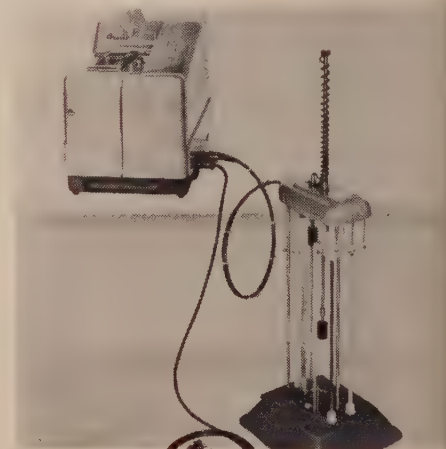
231 SOUTH LA SALLE STREET • CHICAGO 4, ILLINOIS



Packaged Substation

Ultra-compact packaged sub-stations which cut overall size and floor space requirements by as much as 53 percent in size and 40 percent in floor space have been introduced by **I-T-E Circuit Breaker Co.** Units will furnish new tools to power sales departments in planning modernizations of systems. Available in ratings from 75 through 500 kva. Standardized design and construction simplify specification and installation.

Circle item #35 on reply card



Quantitative Analyzer

Graver Water Conditioning Co. has developed an automatic instrument for detecting trace solids in feedwater and condensate. Modifications will also allow the unit to monitor solubles and possibly radioactive particles. The analyzer employs the Millpore Filter test method automatically on tape. A strip-chart recorder is also available. Unit is portable and can monitor samples from four points simultaneously.

Circle item #36 on reply card

Gas turbines show their breeding

By R. L. Steer, Project Engineer, Brown Boveri Corp.

Brown Boveri gas turbines have the "solid" look of steam turbines. The casings are machined castings. The rotor shafts are large. Bearings and other parts are easily accessible. Each turbine has a single, rugged combustion chamber.

This family resemblance comes naturally. Brown Boveri gas turbines were designed from the start for continuous stationary service . . . in contrast to lightweight units adapted from aircraft engine designs.

The first large gas turbine-generator, a 4,000 kw unit, was built by Brown

Boveri and installed in 1939. It is still operating.

The world's largest gas turbine generating plant at Port Mann, Canada, is unattended! Its four 25mw Brown Boveri units are fully automatic and remote controlled.

Overhaul of two Brown Boveri gas turbine sets at the Pertigalete Cement Works, Venezuela, showed a typical condition: after 15,000 operating hours, components were almost like new. No sign of wear. No repairs or parts changes required.

Scores of Brown Boveri stationary

gas turbines totalling over 1,300,000 kw installed capacity are driving generators, compressors and blowers in nearly continuous trouble-free operation—year after year. No other manufacturer can match this experience.

About Brown Boveri gas turbines: Sizes: 1,200 to 30,000 kw output. Single shaft sets for low initial cost. Double shaft, multi-stage units for lowest cost per kw and higher efficiency. Dual burners, quickly adaptable to gas or liquid fuels. Stationary, semi-mobile or mobile mounts. Completely automatic or remote controls.



A Brown Boveri two-stage gas turbine. This turbine drives a 25 mw generator part of which is visible at the lower right corner of the photo. Starting time from cold to full load is less than 20 minutes.

BROWN BOVERI

Brown Boveri Corp., Dept. EP8, 19 Rector Street, New York 6, N. Y. Agents in 27 U. S. cities.

Crapo
GALVANIZED

STEEL STRAND



Mandrel Test*



Checked and Double-Checked by Laboratory Technicians

Every coil of wire used in the manufacture of *Crapo* Galvanized Steel Strand is tested and approved by trained laboratory technicians. Samples from both ends of each individual coil are subjected to a series of prescribed tests before stranding. Then, the finished strand is re-checked to make certain that it conforms in every respect to established specifications and our own high quality standards.

Thus you know when you specify *Crapo* Galvanized Strand that every precaution has been taken to assure maximum performance in the finished product.

Write for Free Booklet

"The Story Behind *Crapo* Galvanized Wire and Strand" illustrating and describing manufacturing techniques and testing procedures. Ask for Booklet B-59!

AVAILABLE IN 3 COATING WEIGHTS

FOR GUYS, MESSENGER AND OVERHEAD-GROUND WIRE

Crapo Steel Strand is available in all standard sizes and grades and in Class A, B and C galvanized coatings. Class B coating is twice as heavy as Class A coating; Class C coating is three times as heavy.



*Determines ductility of wire and adherent quality of galvanizing.

INDIANA

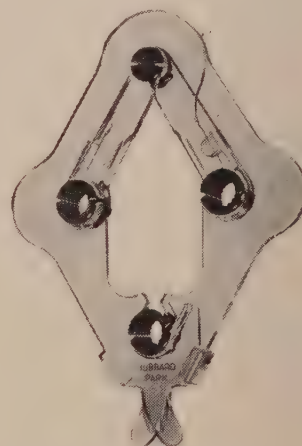
STEEL & WIRE CO., INC.
Muncie, Indiana



Bypass Switch

Two standard open cutouts are linked by a heavy, easily operated bypass blade in a distribution bypass switch by **Westinghouse** which permits safe, economical bypassing of distribution reclosers and regulators for maintenance purposes. The cutouts are series connected to the recloser or regulator leads. Continuous current rating is 200 amperes at 15 kv. Impulse strength is 95 kv.

Circle item #37 on reply card



Plexiglas Aerial Spacer

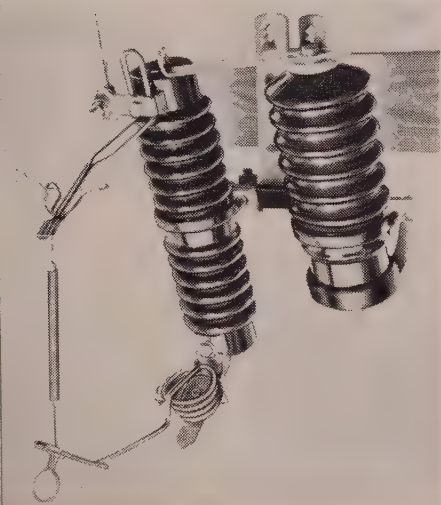
Installation of the Hubbard-Park aerial spacer is both easy and economical. Polyethylene grommets are slipped on the various wires which can then be easily installed in the opened spacer. After conductors and messenger are snapped in place, closing automatically locks the assembly into an integral unit without accessory parts. Spacing is on 6 in. centers. By **Hubbard and Co.**

Circle item #38 on reply card

Cutout-Arrester Combination

The A. B. Chance Co., 7.8 kv open link cutout is now available with a valve type lightning arrester to provide a low-cost cutout-arrester combination for use on rural distribution lines. Unit can be mounted on single bracket, can be installed faster and more economically than individual units, and takes up less room on the crossarm. Manufacturer says units have been combination tested under both cutout and arrester operating conditions.

Circle item #39 on reply card



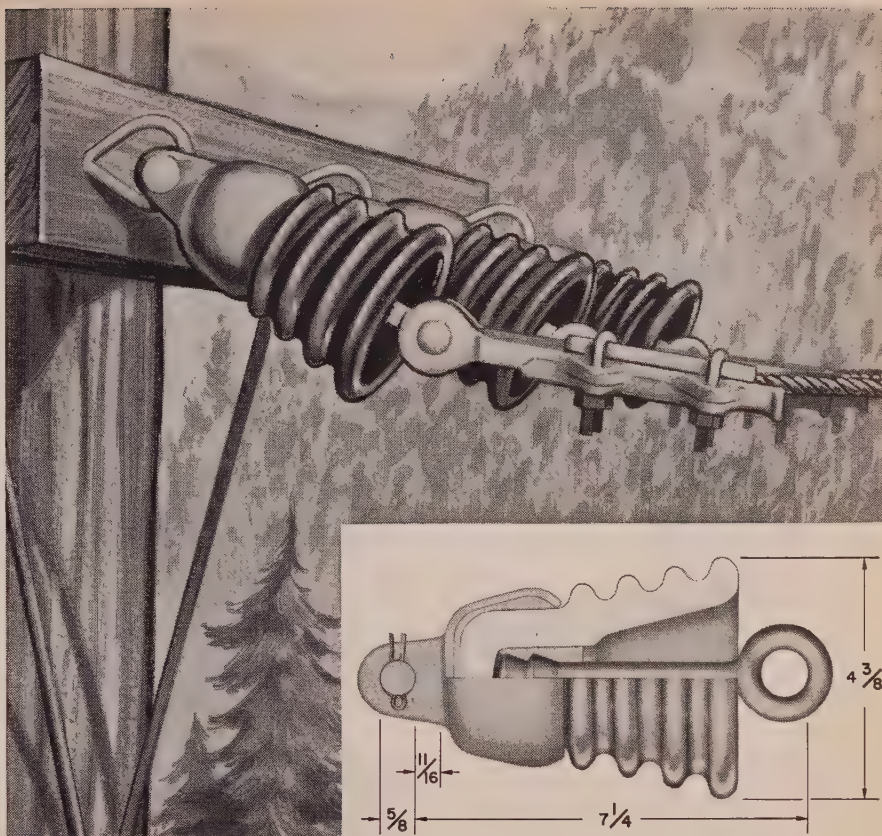
Washington Outlook

(Continued from page 45)

Rayburn, urging defeat of the measure, the union now states:

"Although the bill would in some small measure benefit a few individual members of the AFL-CIO, by permitting them to deduct from gross income the entire amount of the dues which they pay to their union, other effects of the bill would be highly detrimental to the public as a whole, and could constitute an unwarranted and substantial loss to the Treasury."

In the eyes of union big-wigs, deductibility of lobbying expenses could lead to an increase in business support for legislative proposals that might dilute some of the union's broad powers. They have put the thumbs-down sign on the Boggs bill and can be expected to go all-out in their efforts to defeat it. Proponents of the measure have their work cut out for them.



Delta-Star Rugged Strain Insulators Cut Dead-Ending Costs 40% on 12.47 KV Lines

The new Delta-Star "Rugged" Strain Insulators cut the cost of dead-ending lines up to 12.47 KV by as much as 40%. One "Rugged" Insulator can be used to do the work of two conventional 6" or one 10" unit—without fear of cross-arm or pole top burning. Since "Rugged" Strain Insulators cost only slightly more than conventional 6" units, there is a large saving in initial cost. Installation costs are also slashed, since only one insulator must be installed instead of two. During hot line construction on nearby equipment, the "Rugged" Insulator lends itself to easy covering due to its smaller diameter.

Reason for the remarkable cost cutting possible with Delta-Star "Rugged" Strain Insulators is the new tubular contour, which practically eliminates crack and fissure damage during handling. Force of impact is spread over the entire insulator if dropped, instead of being concentrated on a single porcelain projection, as is the case with conventional 6" discs.

"Rugged" Strain Insulators have been field proven in six years of use. For complete information on how they can save you money, write to . . . Delta-Star Electric Division, H. K. Porter Company, Inc., 2437 W. Fulton St., Chicago 12, Ill.

DELTA-STAR

PORTER

ELECTRIC DIVISION

H. K. PORTER COMPANY, INC.

PORTER SERVES INDUSTRY with steel, rubber and friction products, asbestos textiles, high voltage electrical equipment, electrical wire and cable, wiring systems, motors, fans, blowers, specialty alloys, paints, refractories, tools, forgings and pipe fittings, roll formings and stampings, wire rope and strand.

MAKE
A
"TEST CUT"

WITH
BETTER

HKP®

**PORTER
PRUNERS**

AND DISCOVER
**FASTER, EASIER
CLEANER**

Pruning

**A FINER TOOL FOR
EVERY PRUNING OR
BRUSH-CUTTING JOB!**

The proof of the pruner is performance! Try any Porter Pruner on any job. The first, fast, easy cut will convince you that the seconds saved per cut can mean \$\$\$ saved from now on. If you are not using Porter Pruners, switch to these work-saving tools today! There's a Porter Pruner for all pruning jobs.

**OVERHEAD
AND ON-THE-
GROUND
CLEARANCE JOBS!**

"FORESTER" HEAVY-DUTY BRUSH CUTTER — with exclusive patented "Slide Shift" — lets you switch from "easy" to "hard" to "toughest" cutting simply by shifting the handle. Takes the place of 3 ordinary pruners. 2 sharp, fine-steel blades give quick-healing, clean cuts, make work easy for operator. 2 models — 0290F — Capacity 1½" green wood; 0390F — Capacity 2" green wood.

PORTER POLE PRUNERS for utility line clearance. 4 models — for all work. Lightweight model — short and long arm types, with and without pulleys. Cut up to 1' green wood. Available with Solid or Jointed Poles.

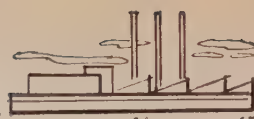
ASK YOUR SUPPLIER — or write us for the complete PORTER PRUNER catalog.

HKP®

H. K. PORTER, INC.

Somerville 43, Mass.

SUPPLY



FACILITIES

U.S. Steel Modernizes To Improve Rotor Treating

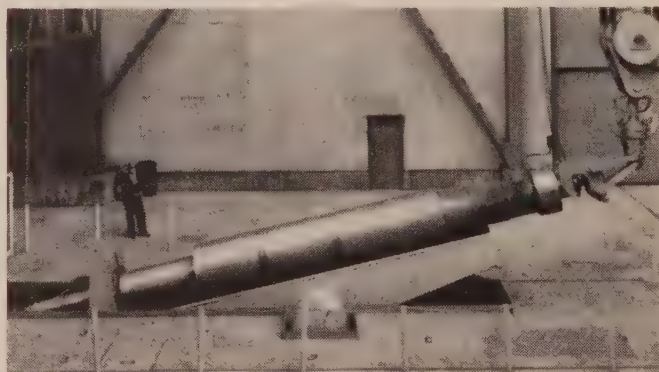
Installation of seven new vertical furnaces for heat treating electric-power generator rotors has been completed at the forging division of United States Steel's Homestead (Pa.) district works.

The new facilities, consisting of a quench tower and an upending cradle in addition to the new furnaces, were built primarily to satisfy customer demand for rotors heat treated in an upright position

after they have been forged and machined, according to General Superintendent Robert A. McClure.

"The electrical industry is working to improve its own products," Mr. McClure said, "and has asked that more generator rotors be heat treated vertically to eliminate any residual stresses which may occur in horizontal-furnace heat treating."

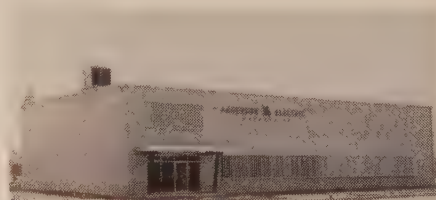
Until the new furnaces and auxiliary equipment were installed, the



Protection for rotor shafts is provided by this upending mechanism, part of the modernization program recently completed at U. S. Steel's Homestead Works. Device prevents rotor shaft from being bent while being raised into position to be lifted into new vertical furnaces for heat treating.

Anderson Electric Headquarters Completed

Anderson Electric Corp. has moved its executive, sales, accounting, and production control departments into new quarters at Leeds, Ala. The new executive and administration building is adjacent to their plant facilities in Leeds.



The problems of expanded business activity and those inherent with operating from Atlanta with production facilities at Leeds prompted the move to the two-story, 13,000 sq ft building.

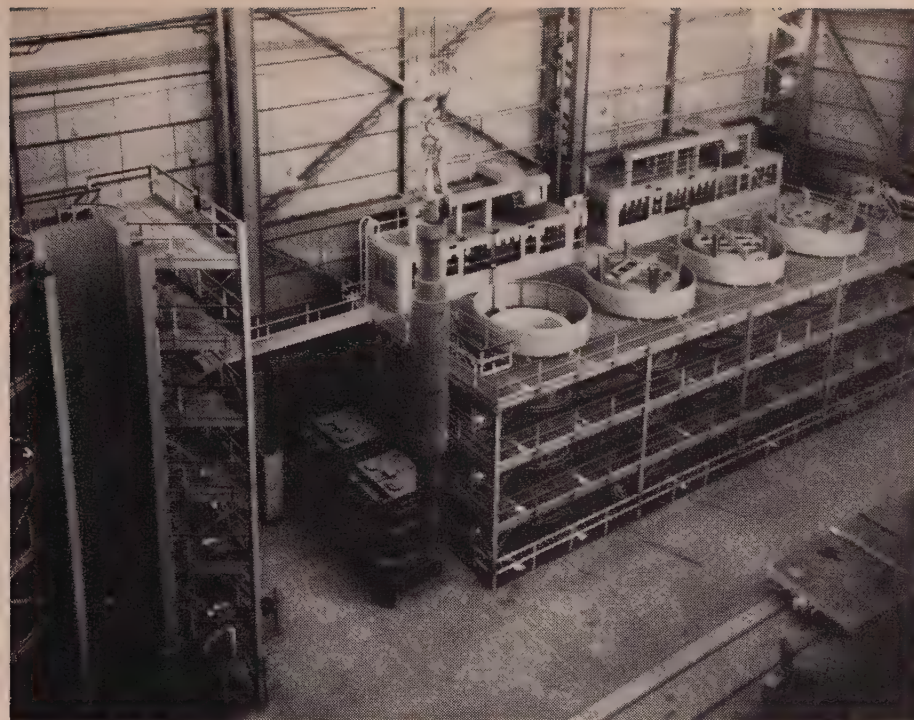
McGraw-Edison Acquires Handley Brown Division

McGraw-Edison Co. has announced it has acquired the Alrectic division of Handley Brown Co., Jackson, Michigan. The purchase, made for cash, includes the Jackson plant and the division's patents.

Alrectic, formed in 1957, is engaged in the prefabrication of substation structures, lattice poles for high voltage distribution and transmission systems, and street lighting poles.

SALES BRIEFS

Kinrick Company, St. Louis, Mo., has been appointed as sales representative for **Vickers, Inc.**, Electric Products division. Sales territory for the new representative will be Missouri, eastern Kansas, Iowa, and southern Illinois.



After being drawn from one of the seven new vertical heat treating furnaces, the rotor shaft is carried by crane to the quenching tower (at left) where it is cooled by air or water to the desired temperature.

Homestead Works operated only three vertical heat treating furnaces and a quench tower.

The new equipment is housed in a modern, 100-ft-high building, with the furnaces sunk 35 ft below the concrete floor. The furnaces rise 50 ft above the floor and can accommodate rotors 40 ft in length and 60 in.

in diameter.

A Nike-like cradle see-saws on an axis to raise the forgings into a vertical position, protecting it in the process from being bent. An overhead crane then can lift the rotor and carry it to the waiting furnace without fear of damage to the forging.

Clark Controller Co. has announced the appointment of two new distributors: **Tri-State Lighting & Supply Co.**, Evansville, Ind., and **Kings-Boro Electrical Supply Corp.**, Brooklyn, N. Y.

C. D. Binning Co. has been named a sales representative for **G & W Electric Specialty Co.** Headquarters for the new representative will be in Detroit, Mich.

Line Material Industries has announced that they have signed a distributor agreement with **Hughes Brothers, Inc.**, Seward, Neb. Effective immediately Line Material will become the sole distributor of all Hughes Brothers catalog items, including the full line of transmission and distribution hardware.

A new **RT&E distribution transformer service center** has begun operation in Richmond, Calif., near San Francisco. The Richmond facility is the first exclusive service extension of the transformer manufacturer who recently opened their third plant in Arlington, Tex.

FOR SAFETY'S SAKE USE COHARDITE INSULATED TOOLS

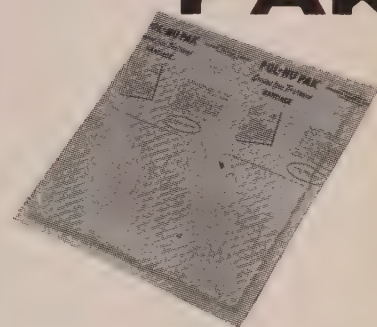


Play safe with personnel, tool costs and workmanship. Most modern utilities equip their men with famous — **COHARDITE INSULATED TOOLS**. Cohardite — the never-peel, insulating material — gives extra protection (tested from 5000 to 20,000 volts) — from handle to $\frac{3}{8}$ " point in Standard and Metermen's **SCREWDRIVERS** — complete handle in **ADJUSTABLE HEAD WRENCHES** — entire frame in **HACKSAWS** — up to socket in **NUT RUNNERS**. Write for complete folder.

INSULATED TOOL CO., INC.
BAR MILLS, MAINE

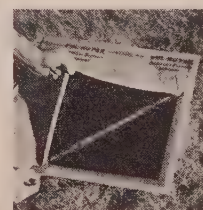


POL-NU PAK



Convenient, envelope-type ground- line treatment bandage

Now line crews can apply ground-line preservative treatments to poles when they do overhead work by carrying Chapman Pol-Nu Paks on service trucks as standard equipment. This convenient pole preservative bandage, available in several sizes, comes as a completely sealed envelope which is easily opened and wrapped around the pole. Chapman Pol-Nu, grease-type pentachlorophenol compound inside the bandage, protects the critical ground-line area from decay and insures longer pole life. Mail the coupon for complete information on Pol-Nu Paks and on Pol-Nu in bulk for use with the Pol-Nu Bandage-Maker when many poles are to be treated.



Slit Pol-Nu Pak on three sides and open to expose the preservative.



Wrap the bandage around pole at ground-line and back-fill.

CHAPMAN CHEMICAL COMPANY

Leading manufacturer of wood preservatives
Memphis 1, Tenn.

Palo Alto, Cal. • Portland, Ore. • Minneapolis
Charlotte, N. C.

Mail coupon for complete data

Chapman Chemical Company
P. O. Box 138, Memphis 1, Tenn.
Please send data on Pol-Nu Pak and information on extending pole life to:

Name _____
Company _____
Address _____

What Price Difference?

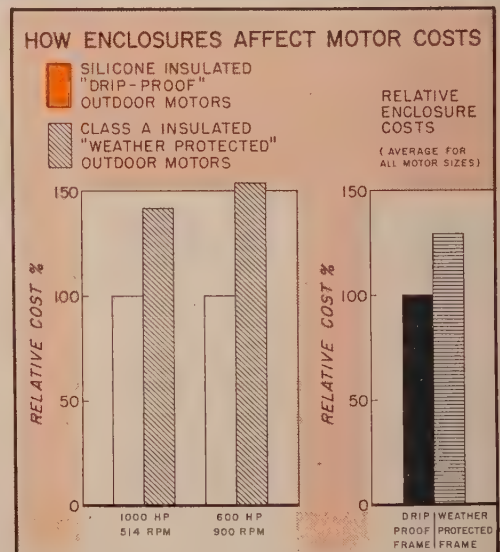


There's No Price Premium . . . Just Savings . . . When You Specify Silicone Insulation

For Outdoor Locations: You can save 30% and more on initial cost of form-wound motors by specifying silicone insulation systems made with Silastic, the Dow Corning silicone rubber. Here's why: 1) Silicone insulated motors are now available at no price premium; 2) The insulation system itself is self-protecting, shrugs off weather, humidity, corrosion, dust, even flooding. There's no need for elaborate enclosures that push motor prices up and up. The chart (right) shows how much you save by specifying silicone insulated open motors.

For Indoor Locations: Where ambient temperatures are high, where corrosive fumes or industrial contaminants are present; where relative humidity is pushing 100%; where motors are hosed down — in all these applications and others, too, expensive motor enclosures, and often expensive ducting as well, can be eliminated by specifying silicone insulation.

For Any Location: Silicone insulation systems increase motor service factor by as much as 15 to 30% because of their greater thermal stability. This increased service factor means there's no need to overmotor for occasional overloads . . . and suffer the power factor penalty of part loaded induction motors.



This chart shows one of the ways you save by specifying motors insulated with Silastic.

New brochure on Silicone Insulation.
Write for your free copy.
Address Dept. 2708.



Dow Corning CORPORATION
MIDLAND, MICHIGAN

ATLANTA BOSTON CHICAGO CLEVELAND DALLAS LOS ANGELES NEW YORK WASHINGTON, D. C.

MEN OF

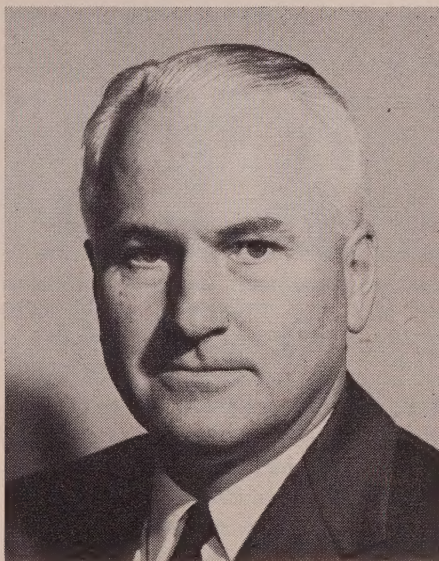


POWER

Stone & Webster Service Elects Two



F. C. L. Sperry



E. M. Hawkins, Jr.

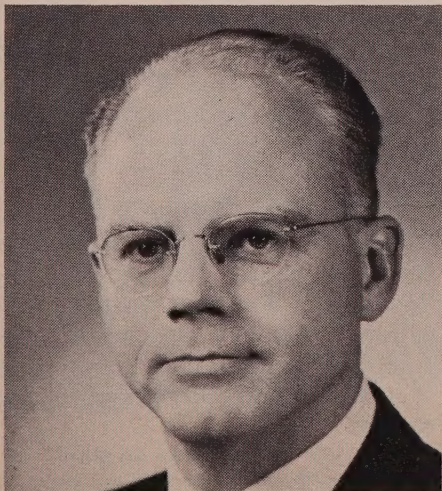
Frank C. L. Sperry and Edgar M. Hawkins, Jr., have been elected vice presidents of Stone & Webster Service Corp. Mr. Sperry was also elected president of Conversions and Surveys, Inc., a subsidiary of the Service Corp. in the gas utility field.

Mr. Sperry is personnel director of the Service Corp., a post he has held since 1957. He joined Stone & Webster in 1947 in the Boston office,

having previously worked for several gas utility organizations.

Mr. Hawkins joined Stone & Webster in 1933 following his graduation from Massachusetts Institute of Technology. He subsequently served in managerial positions with VEPCO, the city of Danville, Va., and was vice president of Michigan Gas Utilities Co., from 1957 until 1959, when he returned to the Service Corp. in the New York office.

PP&L Ups Frisbee

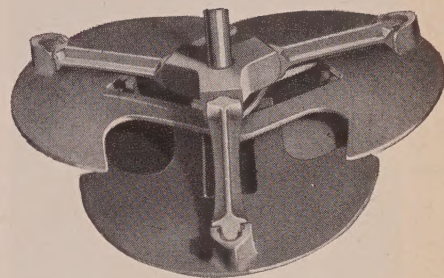


Election of Don C. Frisbee to be a vice president and treasurer of Pacific Power & Light Co., has been announced by Paul B. McKee, chairman of the company.

Mr. Frisbee, who has been treasurer since September, 1958, succeeds George F. Mackenzie, who is retiring as vice president and comptroller after 47 years with the company.

The new officer joined PP&L in 1953. He was appointed an assistant treasurer in 1956. He became an assistant secretary of the corporation in June, 1958, and treasurer in September of that year.

**EXTRA Holding Power
QUICKLY Installed
TOUGH For long life**



EVERSTICK ANCHORS

For new construction and maintenance —Everstick Anchors speed up work and provide dependable anchorage on all types of jobs. Made of resilient, rust resistant malleable iron. The toughest anchors made. Write for bulletin.

EVERSTICK ANCHOR CO.
FAIRFIELD, IOWA

Snapit-On

**Protector
Shields
for
CONDENSER
AND
BOILER
TUBES**



**DETERS
EROSION**

**PREVENTS
MATERIAL
WASTAGE**

**REDUCES
MAINTENANCE**

**GIVES TUBES
LONGER LIFE**

**MADE IN STAINLESS STEEL
AVAILABLE IN ALL SIZES**

THE Vince BASNIK COMPANY
• 2020 CENTER STREET • CLEVELAND 13, OHIO

MEN OF POWER BRIEFS

Byron Cohn, vice president in charge of engineering, construction, and operation, Kansas Power & Light Co. has been elected to the board of directors of the company.

New director of Philadelphia Electric Co. is **Gustave G. Amsterdam**, chairman of the board and president of Bankers Securities Corp.

D. Bruce Mansfield, executive vice president of Ohio Edison Co. has been elected a director of the company.

Harold Webster, president of National Electrical Contractors Association, has been elected chairman of National Electrical Week. He succeeds **N. J. McDonald**, president of Thomas and Betts. **T. O. McQuiston**, vice president of Metropolitan Edison, was named vice chairman; **A. W. Hooper**, executive manager, National Association of Electrical Distributors, secretary; and **L. W. O'Brien**, G-E public relations department, treasurer.

Vice president **John E. Logan**, Jersey Central Power & Light Co. has been named to the company's board of directors.

Georgia Power Co. has announced that **C. Parker McRae** has been named assistant to the president. He was formerly regional representative of the community development division.

Louisiana Power and Light Co. has announced two personnel changes; **Donald L. Aswell**, station superintendent at the Sterlington generating station, has been appointed station superintendent at the company's Little Gypsy station, now under construction. He replaces **John R. Horton**, who has moved up to the position of general superintendent of power.

Four executives of Southern Nevada Power Co. were recently promoted. **Reid Gardner**, president and general manager of the company, was also elected chairman of the board. He will continue as president and manager. **Elmer F. Johnson**, vice president, has been named assistant general manager, **Arthur E. Pearson**, treasurer, was elected vice president, and **Harry Allen**, formerly executive assistant, was elected vice president.

Dr. Walter H. Zinn, v.p. in charge of nuclear activities, Combustion Engineering Inc., was named a Fellow of the American Nuclear Society at the Society's recent annual meeting in Chicago.

New director of advertising for the Atlantic City Electric Co. is **Red Ritson**.

Oklahoma Gas and Electric district accountant, **Wilfred F. Ward**, has been named manager of the El Reno district of the company.

J. H. Hunnicutt, formerly associate editor of *Power Engineering* magazine, has joined Thompson-Ramwooldridge Products as an applications engineer specializing in computer control and monitoring systems for the electric power industry.

Alfred H. Doud has been appointed

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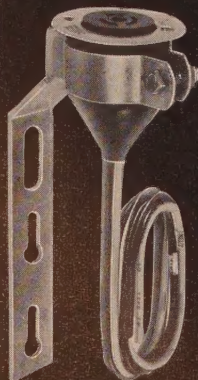


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director of Public Relations of the Rochester Gas and Electric Corp.

At a recent meeting of the board of Colorado Central Power Co., **Lawrence L. Gann** was elected assistant secretary and assistant treasurer.

Howard Dale Langley has been appointed marketing manager—motor control, for Federal Pacific Electric Co.

Edwin O. Brown has been named Philadelphia district manager of Weston Instruments division of Daystrom, Inc. Mr. Brown will be succeeded as Syracuse district manager by **L. P. Duck**.

At Daystrom, **Roswell W. Gilbert** has been chosen to fill the post of director of corporate research.

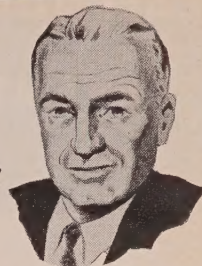
Rockbestos Wire and Cable Co.'s new sales manager is **Eugene S. Reed**, former southwestern division manager.



Frank Kitzmiller, Jr. has been appointed to the new position of inter-industry coordinator for the Live Better Electrically Program of Edison Electric Institute. The appointment represents one more step in uniting utilities, manufacturers and trade allies in selling the concept of total electric living.

New director of marketing for Simplex Wire & Cable Co. is **Marshall A. Williams**.

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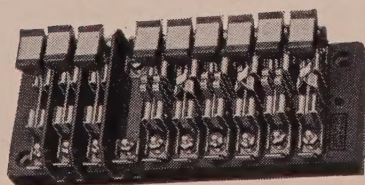
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CALENDAR OF EVENTS

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August 9-12—American Institute of Electrical Engineers, Pacific General Meeting, El Cortez Hotel, San Diego, Calif.

September 7-9—Northwest Electric Light and Power Association, Annual Convention, Glacier Park Lodge, Glacier National Park, Mont.

September 7-9—American Society of Mechanical Engineers, Joint Automatic Control Conference, Massachusetts Institute of Technology, Cambridge, Mass.

September 15-16—American Society of Mechanical Engineers, Engineering Management Conference, Morrison Hotel, Chicago, Ill.

September 21-23—Inter-Industry Farm Electric Utilization Council, National Electric Farm Power Conference, Hotel Louisville, Louisville, Ky.

September 26-30—Instrument Society of America, Fall Instrument - Automation Conference and 15th Annual Meeting, New York Coliseum, New York, N. Y.

September 28-30—Indiana Electric Association, 51st Annual Convention, French Lick-Sheraton Hotel, French Lick, Ind.

September 29-30—Electric Companies Public Information Program, 1960 PIP Workshop Conference, Sheraton-Charles Hotel, New Orleans, La.

September 29-30—Southeastern Electric Exchange, Accounting Conference, Tides Hotel, St. Petersburg, Fla.

October 5-7—Wisconsin Utilities Association, Electric and Gas Sales and Operating Sections Convention, Schroeder Hotel, Milwaukee, Wisc.

October 6-7—Electric Council of New England, Transmission and Distribution Committee Meeting, Lake Morey Inn, Fairlee, Vt.

October 9-14—American Institute of Electrical Engineers, Fall General Meeting, Morrison Hotel, Chicago, Ill.

October 20-22—Electric Companies Public Information Program, Second National Youth Conference on the Atom, Museum of Science and Industry, Chicago, Ill.

November 9-11—American Institute of Electrical Engineers, Second Power Industry Computer Application Conference, Chase Hotel, St. Louis, Mo.

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